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The redesigned Web site at Aviall now generates \$60 million of the company's \$800 million in annual revenue. An automated warehouse at Cardinal Health has achieved 10% productivity gains while also reducing order entry errors. These are among the 10 projects selected as winners of *Computerworld's* second annual Premier 100 Best in Class awards. Read how the IT executives who led these initiatives combined innovative ideas and solid business goals with their own leadership abilities to drive project success. **Package begins on page 43.**

Microsoft Buys Its Way Into Server Consolidation Space

Delay in virtualization product's release may be saving grace for rival offerings from VMware

BY CAROL SLIWA

Microsoft Corp. is counting on the virtual machine software that it acquired last week from Connectix Corp. to appeal to Windows NT Server 4.0 users who are interested in server consolidation and migration.

The Connectix Virtual Server software lets users run multiple distinct copies of server operating systems — including Windows, Linux and Unix — on a single physical machine.

But it's unclear how receptive users will be to the new

BUT WAIT — THERE'S MORE

Microsoft's acquisition of Connectix gives it virtual PC software as well. **Page 57**

Microsoft offering, since it won't become generally available until year's end and its arch competition, GSX Server from VMware Inc. in Palo Alto, Calif., has been shipping for more than two years.

San Mateo, Calif.-based Connectix recently said its

Virtual Server product would ship this quarter. But Jim Hebert, general manager of Microsoft's Windows server product management group, said security and code reviews, tuning and localization work will cause Microsoft to delay the product until the fourth quarter.

"Do I wait? They've never hit a deadline yet," said Tom Pane, a vice president of technology at New York-based AnnTaylor Stores Corp., which has been exploring server consolidation with VMware.

Cognizant that support is winding down for Windows NT Server 4.0, Pane said that the retailer has already begun its conversion to Windows 2000 and that he doesn't want *Virtualization, page 57*

Telecommuters Weather Storm

IT strategies need to include out-of-office provisions, users say

BY PATRICK THIBODEAU
WASHINGTON

The big winter storm that shut down many federal government operations in Washington last week, along with businesses throughout the Northeast, didn't hurt Mattress Giant Corp.

much. That's because it has made telecommuting an essential part of its IT strategy.

"If we didn't have [telecommuting]... we'd be in a world of hurt," said Steve Williams,

CIO at the Addison, Texas-based company, which has more than 250 stores, many in the Northeast and Mid-Atlantic regions. Telecommuting employees were able to stay in touch with customers to keep them apprised of the status of deliveries. "Even in a crisis situation, our people were still able to be productive and save sales," Williams said.

Mattress Giant's decision to implement a formal telecommuting program was prompted by an earlier ice storm in the Dallas area. But many companies lack such programs, opting instead to take an informal approach. That could be costly for IT managers.

Without a telecommuting management program, a company may find itself paying for *Telecommuters, page 16*

REMOTE ACCESS

LAGGING BEHIND

The federal government has failed to keep pace with the private sector in adopting telecommuting programs:

QuickLink 36504
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HIPAA Data Rules Leave Choices to IT

But new health care security standards raise legal concerns

BY BOB BREWIN

New federal rules for securing personal health data give insurers and medical providers more flexibility on IT than expected. That could lower compliance costs but create a potential legal nightmare for health care companies, according to industry officials, consultants and lawyers.

HIPAA Rules, page 16



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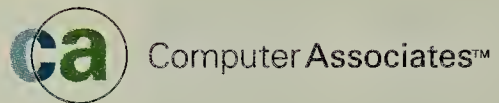
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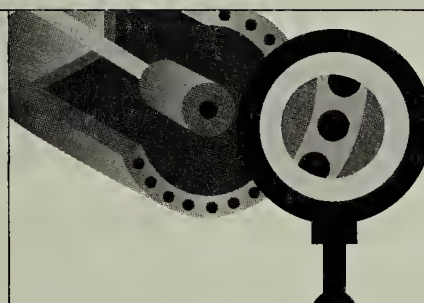
CONTENTS

02.24.03



Taming Temp Costs

In the Technology section: Specialized software tools are helping corporations save on temporary-workforce management expenses. **Page 27**



The Data Builds the Products

In the Technology section: Product life-cycle management tools can lower costs and speed time to market, but IT should expect integration hurdles. **Page 32**

MANAGEMENT

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- 44 Cardinal Health** moves to an automated warehouse system, achieving 10% productivity gains.
- 44 The reorganization of Corning Life Sciences'** European operations was completed at 75% of the estimated cost.
- 45 A Web site project at Aviall** drives ordering costs from \$9 per transaction to 39 cents.
- 46 A supply chain overhaul** has saved the **Tennessee Valley Authority** \$23.5 million.
- 46 A new data warehouse at Office Depot** boosts annual sales by \$117 million.
- 47 Celanese Chemicals'** wireless system gives salespeople access to back-end billing and shipping data — and e-mail.
- 48 Delta Air Lines** deploys hundreds of self-service kiosks to save travelers time.
- 48 An intrusion-detection system at Pershing** reduces the risk of service interruption.
- 49 A Palm handheld trial at the University of South Dakota** has been a learning experience for students and IT staff.
- 51 A new application framework** allows **GE Power Systems** to cut development time.

TECHNOLOGY

- 36 Security Manager's Journal: Corporate Addition Means Reduction in Security.** In the wake of a merger, Vince Tuesday gets caught between two different sets of security priorities.
- 39 Q&A: Tivoli GM Explains IBM Unit's Move to J2EE.** Tivoli is rebuilding its flagship Tivoli Enterprise framework around J2EE. General manager Robert LeBlanc explains why and what it means for users.

NEWS

- 6 Hackers steal 8 million credit card numbers**, but the company whose systems were compromised says the culprits may not be able to use them.
- 8 IBM's Power5 RISC microprocessor**, due to ship next year, will deliver four times the performance of current chips, says the company.
- 12 CIOs say IT cuts** could be avoided through better communication of IT's business value to the company.
- 12 A Retiring Microsoft official** says the software vendor must embrace open source or risk a bleak future.
- 14 Reducing software flaws** is a near-term, achievable goal of the president's cybersecurity strategy, experts say.
- 18 High prices** are fueling interest in energy management systems.

OPINION

- 8 On the Mark: Mark Hall** counts three ways to build Web services and encounters researchers who bemoan the quality of Web pages.
- 24 Patricia Keefe** lauds the work done by the Premier 100 Best in Class as examples of how IT doesn't just help companies but can save them, too.
- 24 Pimm Fox** claims that you could have known years in advance about your IT shop's current predicament, if only you had used business-simulation software.
- 25 Dan Gillmor** says IT managers are addicted to monopolies for reasons of simplicity. But that addiction may cause problems in the future.
- 40 Tommy Peterson** suggests a few small security steps by corporate IT that would go a long way toward reducing threats to the nation's Internet infrastructure.
- 58 Frankly Speaking: Frank Hayes** worries that a goodbye memo from a longtime Microsoft employee may be telling us that the company isn't working in IT's best long-term interest.

DEPARTMENTS/RESOURCES

- At Deadline Briefs 6
- News Briefs 8, 16
- Letters 25
- Company Index 56
- How to Contact CW 56
- Shark Tank 58

ONLINE

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Safe Harbor: A Success Story

PRIVACY: It's practical, it's voluntary, and companies are signing up for the agreement at a pace of one every two days, columnist Jay Cline says of the U.S./European Union accord. **QuickLink 36456**

Top Intrusion-Detection Mistakes

SECURITY: Some common errors in setting up network monitoring can seriously degrade your system's effectiveness. Columnist Anton Chuvakin offers tips on avoiding them. **QuickLink 36068**

Reusable VB .Net Code

DEVELOPMENT: This tutorial shows you a technique for building reusable class frameworks in Visual Basic .Net. **QuickLink 36447**

Bridging Communication Gaps

DEVELOPMENT: Columnist Esther Derby offers advice on how to avoid misunderstandings that can stall projects. **QuickLink 36056**

Wi-Fi Outlook

MOBILE/WIRELESS: UCLA professor Rajit Gadh outlines the benefits and potential pitfalls of Wi-Fi applications. **QuickLink 36415**

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QuickLink a2570
- The Online Store
QuickLink a2420

AT DEADLINE

Microsoft Targets Rights Management

Microsoft Corp. said it's developing a technology called Windows Rights Management Service that's aimed at helping companies secure sensitive data, such as financial reports and planning documents. The tool is a Web service that's being built on top of Microsoft's .Net Framework and will work with the company's upcoming Windows Server 2003 operating system. Beta-test code is scheduled to be released in the second quarter.

SAP Plans CRM Software Upgrade

SAP AG said it plans to ship a new version of its customer relationship management (CRM) applications in June. The mySAP CRM upgrade will add features for specific vertical industries as well as increased data access support for mobile devices, said SAP, which is trying to better position itself to compete against rivals such as Siebel Systems Inc.

Xerox Asks Court To Bar Palm Sales

Xerox Corp. asked a U.S. appeals court in Washington to block sales of Palm Inc. handheld devices that have been found to infringe on a handwriting-recognition patent held by Stamford, Conn.-based Xerox. The appeals court upheld the infringement ruling but sent the case back to the trial judge for further analysis of the patent's validity.

Short Takes

IBM added a more powerful version of its Power4 processor to its p630 low-end Unix server as part of an effort to put more pressure on rival Sun Microsystems Inc. . . . In other news, IBM completed its \$2.1 billion acquisition of Cupertino, Calif.-based **RATIONAL SOFTWARE CORP.** on Friday, one day after the European Commission approved the deal.

System Break-in Nets Hackers 8 Million Credit Card Numbers

Company claims data may not be 'usable' but vows to improve IT security

BY LUCAS MEARIAN

A CREDIT CARD transaction processing company last week confirmed that millions of card numbers were stolen recently when someone hacked into its computers. But it defended itself by saying the culprits may not have obtained any useful information.

Omaha-based Data Processors International Inc. (DPI) acknowledged in a statement that it "experienced a system intrusion" four weeks ago. But it added that the stolen data "did not include any personal information that could relate a card number to an individual."

The hackers didn't get the names, addresses, phone numbers or Social Security numbers of any cardholders, according to the statement. "It's still unclear if any usable data was compromised at all," said DPI, which processes credit card transactions for direct marketing and mail-order catalog companies.

But even if a hacker had only a credit card number, getting the name, address and phone number of the cardholder wouldn't be an insurmountable task, according to Avivah Litan, a financial services analyst at Gartner Inc. in Stamford, Conn. For example, Litan said, information could be purchased online through

so-called skip trace databases, which are used by bounty hunters and others to find personal information.

Scott Jones, a spokesman for DPI, said the company wouldn't comment about any of the technical aspects of the system intrusion.

Jones also wouldn't discuss whether DPI had intentionally separated the

card numbers from the personal data of consumers in its systems. But he did say that the company is working to improve its information security in response to the break-in.

Analysts said the incident was the largest single case of online theft of credit information. A spokeswoman for MasterCard International Inc. put the total count of credit card numbers that were exposed to the hackers at about 8 million.

Big Targets

Purchase, N.Y.-based MasterCard said 2.2 million of its card numbers were taken, while Foster City, Calif.-based Visa International Inc. said the hackers made off with 3.4 million of its card numbers. New York-based American Express Corp. and Discover Card, a unit of New York-based Morgan Stanley Dean Witter & Co., were also affected by the intrusion.

Richard Fischer, a partner at San Francisco-based law firm Morrison & Foerster LLP, advises Visa and other financial services firms on payment systems, e-commerce and data privacy issues. He said security is a game of one-upmanship with hackers and requires companies to constantly upgrade their technology.

For example, credit card companies such as Visa and MasterCard use sophisticated

computing algorithms to track transactions by cardholders and detect unusual buying patterns, Fischer said.

MasterCard said that during the week of Feb. 3 it began to notify its member banks of the system break-in at DPI. Visa said its fraud team immediately notified all affected card issuers and is now working with DPI "to protect against the

threat of a future intrusion."

But neither the credit card companies nor DPI have disclosed any information about the thefts on their consumer Web sites. "Instead, they will monitor the accounts for any signs of fraud," Fischer said. "If there's any suggestion of unauthorized transactions, they're going to be contacting those individual customers." ▀

INFORMATION SECURITY

Canadian Insurer Rejects 'Don't Tell' Approach on Data Theft

The decision by U.S. credit card companies not to notify the customers whose card numbers were pilfered from DPI's systems contrasts sharply with actions taken by Co-operators Life Insurance Co. when a disk drive was stolen from an IBM Canada Ltd. subsidiary in January.

Guelph, Ontario-based Co-operators had no way of knowing whether the disk drive data, which contained details about 176,000 insurance policies, would be used by identity thieves. But company officials felt the risk alone required them to notify the customers whose data was taken, said spokeswoman Dominique O'Rourke.

"We just felt that it was the right thing to do," O'Rourke said. "There's no legal obligation for us to do it. We just felt our customers had the right to know and should take steps to protect themselves."

Co-operators set up a call center and sent letters to customers with advice on actions they could take to protect themselves, such as notifying credit reporting agencies of the theft and monitoring their bank and credit card statements.

But the worst fears of Co-operators officials may not be realized. Police in Regina, Saskatchewan, where IBM

Canada's Information Systems Management (ISM) unit is based, recently arrested and charged an ISM employee in connection with the theft.

Regina Police Sgt. Rick Bourassa said investigators believe the thief was interested only in the disk drive, not the data stored on it. "There is nothing to indicate the information was either targeted or used," Bourassa said. The police wouldn't release other details, such as whether the data had been encrypted.

Neither Canada nor the U.S. requires companies to notify customers of data thefts. But a California law that takes effect in July will require companies to notify customers in that state if their personal data has been compromised.

- Patrick Thibodeau

"We just felt our customers had the right to know and should take steps to protect themselves."

.....
DOMINIQUE O'ROURKE,
SPOKESWOMAN, CO-OPERATORS
LIFE INSURANCE CO.

Correction

The chart accompanying the article explaining payback period on page 28 in our Feb. 17 issue was mislabeled. What was shown as the payback period for ATM installation was actually the payback period for server consolidation.

California Utility Invests \$204M in System Overhaul

PG&E bets big on packaged software to replace homegrown customer app

BY THOMAS HOFFMAN

Pacific Gas & Electric Co. has completed a three-year-plus effort to replace its legacy customer information system (CIS) with off-the-shelf technology, a project that one analyst described as the largest implementation of packaged CIS software in the energy industry thus far.

The new system, which went live Dec. 5, required a total investment of \$204 million, said Roger Gray, CIO at San Francisco-based PG&E. That covered the cost of hardware,

software, consulting services and 11 months of operational testing and parallel billing runs on the new system and the one it replaced, he said.

PG&E built the new system around CorDaptix, a set of customer management applications developed by Morristown, N.J.-based SPL World-Group. Gray said the project was launched in response to the deregulation of California's power industry, which created a need for utilities such as PG&E to meet new customer service require-

ments in a more competitive environment.

PG&E's homegrown mainframe-based CIS system "was 37 years old, had exhausted its useful life and wasn't flexible enough to handle deregulation," he added.

The CorDaptix software runs on an OS/390-based IBM mainframe, like the homegrown system did. But it's considerably more feature-rich than the older technology, said Tracy Harizal, director of CIS at PG&E. For example, Harizal said, CorDaptix works in real time so that when a customer service representative fields a call, information in the system is automatically updated. Be-

fore, PG&E employees had to wait a few days for customer accounts to be updated following mainframe batch-processing jobs, she said.

In addition, the new software is more fully integrated with applications such as PG&E's metering and rate-calculation systems, making data from those systems more readily available to customer service workers, Harizal said.

On Time, Under Budget

Because the CIS project was driven by deregulation, PG&E didn't conduct an upfront analysis of potential returns on investment, Harizal said. But despite the size of the project — which included the conversion of 30 billion rows of data from the legacy system — the company managed to complete the work on time at a cost that was 10% below its original budget, she said.

By the Numbers

Highlights of PG&E's customer information system project:

More than 30 billion rows of data were moved from the utility's homegrown application to the CorDaptix software.

6.72 million customer accounts were converted to the new system, along with 9.28 million power meters.

None of the \$883,780,434.77 that PG&E had in accounts receivable was unaccounted for after the conversion.

Zarko Sumic, a Bellevue, Wash.-based analyst at Meta Group Inc., said he isn't aware of any off-the-shelf CIS software installations within the energy industry that have been larger than the one done by PG&E, which provides natural gas and electricity in a 70,000-sq.-mi. area of northern and central California.

Sumic said that since the 1999 deregulation of California's energy market, the state has established some of the most complex formats in North America for setting the billing rates that different utility customers are charged. PG&E needed a CIS system that could handle that kind of complexity, he said.

In addition, the lack of integration between PG&E's old IBM 3270 green-screen system and other applications resulted in lag time for its customer service workers when they tried to access data from multiple systems, Sumic said.

Harizal said PG&E faced a number of onerous technical challenges, including the need to convert its historical customer data as well as information from other systems that was required to set up interfaces to the CorDaptix software. To ensure success in that area, the utility conducted more than 50 trial runs of the data conversion scripts it developed, she said. ▀

More OneWorld Users Press for Arbitration

J.D. Edwards defends software

BY MARC L. SONGINI

Three more companies that bought early versions of J.D. Edwards & Co.'s OneWorld enterprise resource planning (ERP) software have submitted arbitration claims against the business applications vendor, adding to a list of five cases that came to light last year.

The three additional users filed for arbitration between November and this month. They claim the OneWorld suite has been so troublesome and bug-ridden that their installations are in limbo. The companies all said they have yet to decide if they will keep the J.D. Edwards applications or switch to another vendor.

The new cases are similar to the five that began going to arbitration last spring [QuickLink 28470]. One of the earlier filings resulted in an American Arbitration Association panel awarding \$2.3 million in damages to Arlington, Texas-based Daskocil Manufacturing

Co. Denver-based J.D. Edwards said it has settled another of the earlier cases but wouldn't disclose any details.

Whatever problems early adopters of OneWorld may have faced, the software is now as stable as any other ERP system, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif.

But the fallout from early OneWorld rollouts continues. Sprague Energy Corp., an energy products distributor in Portsmouth, N.H., said in an arbitration filing obtained by *Computerworld* last week that it has suffered more than \$10 million in damages because of problems with OneWorld's stability and the cost and length of its implementation.

Sprague began installing billing, finance and other OneWorld applications in 2000,

then switched to J.D. Edwards' Web-based OneWorld XE software a year later. But after working for more than two years, Sprague was only able to bring OneWorld XE partially online at the end of last year, the company said.

Paul Scoff, vice president of law at Sprague, declined to comment further on the problems it encountered. But he said the portions of the ERP system that Sprague is using had to be heavily customized to make them work.

Unkept Promises

The Flexitallic Group Inc., a maker of industrial gaskets in Houston, spent more than \$3.7 million on a OneWorld project and was "almost brought to its knees because of promises made and not kept" by J.D. Edwards, said CEO Ray LeSage.

According to arbitration documents, Flexitallic bought OneWorld in 1998 but found that the applications "could not operate as a fully integrated system."

Gerald Birin, president of Amherst Technologies LLC in

Merrimack, N.H., said problems with a OneWorld system that was installed in 1999 are forcing the IT products reseller to maintain a separate system built around IBM's UniVerse database in addition to the J.D. Edwards software.

A spokesman for J.D. Edwards wouldn't comment on the pending cases. But he said the company "stands by the quality of its software and will vigorously defend any claims to the contrary." ▀

Disputed Points

The three companies filing arbitration claims say that J.D. Edwards:

- **Misrepresented** the features in OneWorld and the time it would take to install the software.
- **Shipped** applications that were buggy and didn't perform at acceptable levels.

J.D. Edwards wouldn't comment about the cases, but:

- **Said** it has about 1,850 customers that are getting value from investments in OneWorld.
- **Defended** the quality of its software and said it would contest the arbitration claims.

CASE CLOSED

Daskocil Manufacturing convinced arbitrators that the version of OneWorld it tried to install in 1998 didn't work properly:

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MORE THIS ISSUE

Rising power costs are expected to give a boost to energy management software aimed at corporate users. Page 18

BRIEFS

IBM Plugs Holes In Notes, Domino

IBM said it has posted patches for three buffer-overflow problems that were found in its Lotus Notes and Domino 6.0 software by Next Generation Security Software Ltd., a consulting firm in Sutton, England. The fixes are included in a 6.0.1 release of the software. IBM added that it also tested Domino Server 5.0 for the vulnerabilities and developed similar patches for that version.

Oracles Fixes DB, App Server Flaws

Oracle Corp. said it has released patches and work-around instructions for four security flaws in its Oracle9i database and two more in its application server software, which is also sold under the Oracle9i name. The most serious problem is a buffer-overflow flaw that attackers could exploit to take complete control of unprotected database servers.

NCR's President To Replace CEO

NCR Corp. announced that Lars Nyberg will resign as its CEO, effective March 14, because of what it described as family matters. The Dayton, Ohio-based computer and software vendor named Mark Hurd, currently president and chief operating officer, as the new CEO. Nyberg, who has headed NCR for eight years, will remain its chairman, but in a non-executive role.

Short Takes

The **EMBEDDED LINUX CONSORTIUM**, a Santa Rosa, Calif.-based group that includes IBM, Red Hat Inc. and 17 other vendors, released a development specification for Linux applications built into devices such as mobile phones. . . . Pasadena, Calif.-based **OVERTURE SERVICES INC.** said it's buying Palo Alto, Calif.-based Internet search technology vendor **ALTAVISTA CO.**

MARK HALL ■ ON THE MARK

Middleware Guru Warns Web Services Users . . .

. . . who believe they can choose either J2EE or .Net. "It's not possible," cautions Jim Green, CTO of WebMethods Inc. in Fairfax, Va. "People who think they can select between them are fooling themselves." Green, who spearheaded the development of the Common Object Request Broker Architecture, an industry effort to design a standard for middleware, **only to be thwarted by Microsoft Corp.'s competing COM/DCOM/COM+ alternative**, argues that companies will be riddled with

both J2EE and .Net applications as well as a third type, those legacy programs that "will become Web services-enabled." Although vendors such as IBM, Microsoft and Sun Microsystems Inc. are striving to achieve effective standards for Web services, Green wryly points out that "cooperation isn't always in their best interest." As such, he sees an opportunity for "a neutral party" to ensure that all three types of Web services software cooperate fully. Until now, WebMethods has been concentrating on the legacy side of Web services, creating more than 320 adapters for existing applications. But in the second quarter, the company will release support for **JBoss**, an open-source J2EE application server, and sometime later this year, it will do the same for .Net app servers, covering all three aspects of Web services. ■ **If you're already hammering out Web services applications using .Net**, you

might want to get XML Spy from Altova Inc. in Vienna (that's Austria, not Virginia). Later this spring, Version 6.0 will ship with full integration into Visual Studio .Net. Sure, Microsoft's development product lets you add XML wrappers to .Net code, but **it hides XML from you**. While that may be fine for code wimps, Altova

CEO Alexander Falk argues, "XML is a core skill for developers." One day, you may be called upon to work with an XML-based markup language in your favorite discipline. Not just at the office. Buddhist texts, Egyptian hieroglyphics and **the complete genome of the fruit fly** all have their own version of XML. ■ Diane Smith complains that while most Web managers can point to stats that prove their sites' pages load fast and frequently, few of them know how many errors those pages contain. Smith, a research associate at the Business Internet

Let's Mega Deal

High-performance, mission-critical transaction-intensive operations get a boost this week for megabucks when Imperial Technology Inc. in El Segundo, Calif., ships its MegaRam-10000 solid-state memory storage system with a capacity of up to 1TB. Starting at \$350,000, a fully configured 1TB MegaRam-10000 with 48 Fibre Channel ports will cost \$2 million.

Group of San Francisco, just surveyed 40 popular online financial, shopping, search and travel sites and found that 72% of them contained impaired pages, most of which displayed tired old Error 404 messages. In his blog (<http://weblogs.jupiterrresearch.com/analysts/berk/>), Matthew Berk, an analyst at Jupiter Research, calls these rampant 404 errors **"one of the many dirty little secrets of the Web."** The sad thing, says Lynnette Montgomery, Internet manager at Levenger in Del Ray Beach, Fla., is that there are tools to detect and correct them. And she should know. When Levenger applied page-monitoring software from San Francisco-based Tea Leaf Technology Inc., "we found errors galore" on the old site, says Montgomery. Now, with the new Levenger.com up and running and monitored throughout the design stage for Web-page quality, CIO Marnie Barrett says the company has been able to **reduce customer-service staff from eight to two people** because now "customers can find what they're looking for," and IT maintenance time has been shaved 75%. So, other than pigheadedness or stupidity, why don't more Web managers monitor their sites for quality? ■ Application data management (ADM) is becoming **more of a science and less of an art**. Products on the market now let you define policies for specific applications and move their less-used, less-critical data to less-expensive secondary server and storage systems. Michael Howard, CEO of OuterBay Technologies Inc. in Campbell, Calif., says ADM is going to be **another path into the data center for Linux systems** combined with cheap ATA-type disk drives. Supporting more applications will also help. In addition to managing data within Oracle, PeopleSoft and other programs, OuterBay later this year will add Siebel and SAP to its ADM stable. ■

IBM to Ship Power5 Chip Next Year

Unix partitioning will be advanced

BY JAIKUMAR VIJAYAN
NEW ORLEANS

IBM will ship its next-generation Power5 RISC microprocessor architecture in mid-2004, according to company officials here at last week's IBM PartnerWorld event.

The processors will deliver roughly four times the performance of current-generation Power4 chips and feature

technologies that support application-specific performance boosts and mainframe-like partitioning capabilities.

Power5 chips will also feature a technology called simultaneous multithreading, which will enable up to 80% better application-level performance than current technologies permit, said Karl Freund, vice president of IBM's pSeries product group.

Simultaneous multithreading builds on the capabilities available in the dual-core


Power4 processor architecture, according to Freund. Dual-core processors feature two processors in one piece of silicon. With simultaneous multithreading, each processor will be able to run two separate processes or tasks at the same time, Freund said.

The Power5 architecture will also introduce a mainframe-like subprocessor partitioning capability in IBM's Unix server space. With it, users will be able to slice and dice individual Power5 proc-

essors to create up to 10 partitions. And at the highest end, users will be able to create up to 512 partitions on a 64-processor system, said Freund.

The 0.13-micron Power5 chips will feature an acceleration technology that optimizes performance in some applications, IBM said. It will allow certain commonly used code that's executed by software in many popular applications to be executed much faster by the processor hardware.

The first systems based on the new chip will start shipping in the second half of 2004, IBM officials said. ■

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IBM Augments On-Demand, Small Business Initiatives

Bundles channel partner services with new incentives and programs

BY JAIKUMAR VIJAYAN

THE NEW PRODUCTS and channel programs that IBM announced at last week's PartnerWorld show in New Orleans build on the company's unfolding efforts to deliver on-demand computing services for users.

They're also aimed at expanding IBM's presence in the fast-growing small and medium-size business market, which last year accounted for nearly 23% of the company's sales.

IBM last week announced several programs designed to enable its network of 90,000 business partners to deliver on-demand computing services. The initiatives are part of a \$100 million channel investment by IBM that's intended to garner greater reseller participation as IBM delivers its on-demand strategy, said Michael Borman, general manager of global business partners.

Getting Partners Involved

Increasingly, IBM will also work with partners to deliver hosted on-demand services, said Dev Mukherjee, a vice president in IBM's on-demand business group.

One example is the company's partnership with Ketera Technologies Inc., a Mountain View, Calif.-based provider of procurement management software that was founded by American Express Co. Under the arrangement, IBM is hosting and managing Ketera's services on its hardware infrastructure.

CNF Inc., a \$4.8 billion supply chain and logistics services company in Palo Alto, Calif., recently signed up for the IBM-hosted Ketera service. CNF will use Ketera's

Web-based service to purchase all of its maintenance, repair and operations materials, along with all office supplies. The hosted arrangement allows CNF to significantly reduce the costs associated with buying and managing the software it would need to deliver the same kind of functionality on its own, according to Mitch Plaat, director of contract services at CNF.

"We were looking for something that was affordable and quick to deploy, where we did not have to pay for software upgrades and for maintenance," Plaat said.

Transmarine Navigation Corp., a Long Beach, Calif.-based shipping agent, recently began using a similar IBM-hosted accounting service to

NEW PRODUCTS

IBM's Express line of products for smaller businesses includes:

DB2 EXPRESS: Sub-\$1,000 database configured for retail, manufacturing and banking customers.

TIVOLI STORAGE RESOURCE MANAGER EXPRESS EDITION. Optimized for 15-minute deployment on single-processor desktops.

LOTUS DOMINO COLLABORATION BUNDLE EXPRESS: Targeted at organizations with fewer than 1,000 employees. Combines Lotus Domino Server and either Notes client or iNotes.

manage financial operations across its remote offices.

Under the arrangement, Transmarine is using a Web-based professional accounting

service offered by San Jose-based Intaact Corp. that is hosted by IBM.

The arrangement has allowed Transmarine to improve access to its main accounting database while off-loading the burden of managing it, said Peter Whittington, CEO of Transmarine.

Show Concrete Examples

If its on-demand computing initiative is to gain broad-based acceptance, IBM must continue showing other concrete examples of the services and technologies it will deliver, said Janet Waxman, an analyst at Framingham, Mass.-based IDC.

"It looks like they are moving in the right direction," Waxman said. "But it's important that they do a good job of communicating to people what on-demand is all about."

Meanwhile, in a fresh attempt to broaden its presence in the small and medium-size business market, IBM last week rolled out Express editions of popular products such as its DB2 relational database, Lotus Domino collaboration software and Tivoli management applications (see box).

IBM's Express products are packaged and priced specifically for customers at smaller businesses. The products for the most part are configured by IBM's channel partners and are aimed at reducing costs, complexity and implementation time.

"IBM has made it very, very clear that the channel is their route to the [small and medium-size business] market," said Tony Madden, a vice president at Avnet Hall-Mark, a large IBM distributor in Tempe, Ariz.

But IBM's growing aspirations in that space raise the potential for channel conflict, Madden said. "There are some concerns as it relates to IBM's Global Services strategy," especially in the medium-size business market, he said. ▀

App Dev, z/OS Migration Top Share's Dallas Agenda

BY JAIKUMAR VIJAYAN

Share Inc., an IBM large-system user group, will hold its biannual user conference in Dallas this week. Established in 1955, Chicago-based Share is the longest-standing computer user group in existence, with 5,000 active members from 2,000 companies.

In an interview last week, Share President Ken Ebbe spoke about how the organization has shifted from being a largely mainframe-centric user group to one that is more broadly focused in response to changing member needs.

What are the key issues you expect to be raised at this year's Share event? Application development is a hot item for Share attendees and well covered at our event. Middleware

deployment, including the increasing need for security and privacy, remains a major priority for the enterprise and our members. At the Dallas event, we're featuring "Getting to z/OS 1.4," because IBM is strongly encouraging customers to migrate to z/OS 1.4 to take advantage of [future] middleware.

Are you noticing any change in the kind of topics that are discussed at the show?

Most of the issues Share addresses revolve around longtime IT fundamentals. Share is an IBM user group, but the reality of today's enterprise involves integrating diverse applications and systems on vari-

ous platforms. The amount of interest in Linux and storage solutions continues to grow.

Our software asset management track, started a few years ago, has gained significantly in popularity. On the horizon is grid computing and what it means to the data center.

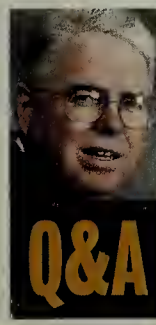
The demise of the mainframe is a perennial topic of discussion. Do you see that happening? The industry certainly lost a couple of companies in Amdahl and Hitachi, and that probably says something about the market in general. But it is still a big market overall, and a

steady market. People that have invested in mainframes will continue to invest in them.

How has Share as an organization evolved? Share's original objectives and purpose remain largely unchanged since its founding. Share is an in-

dependent, volunteer-run user community providing IBM customers with user-defined education, professional networking and a forum to influence the information technology industry. The need to develop, debug, test and produce solid products remains a fundamental requirement. System uptime is more critical than ever, and while we have more tools, we also have more complexity and more demands.

What impact has the economy had on attendance for this year's show? Until Sept. 11, Share's conference attendance was growing. After Sept. 11, Share took a small hit at our following conference in March and [since] then has remained steady. Discussions with our customers indicate that the slowdown in the economy, particularly spending on IT, is the major reason. That is consistent with what we're seeing industrywide. ▀





Internal IT Marketing Is Scarce, Survey Finds

CIOs say IT cuts could be minimized by reaching out to business managers

BY THOMAS HOFFMAN

WHAT WE HAVE here is a failure to communicate. According to a soon-to-be released survey of 277 CIOs and IT directors, nearly three-quarters of the respondents said they have had to cut their budgets by more than 15% over the past two years and that they think more effective communication with senior management about the value IT generates could have reduced those cutbacks by half.

The e-mail survey, conducted during last year's fourth quarter by Stamford, Conn.-based Meta Group Inc. and Creative IT Marketing, a New York-based consulting firm, is expected to be released this week. One of the survey's findings is that few IT departments — just 17% of the respondents — have established formal marketing or communications programs for reaching out to business users.

Among the 83% that lack such programs, IT budget cuts ranged from 5% to 25% during the past two years, according to Meta and Creative IT Marketing. Meanwhile, most of the respondents with IT marketing programs in place said their budgets remained flat.

Perception Problem

Several IT managers acknowledged that communication with business executives can be a big problem.

"Unfortunately, I do believe that many IT executives do a poor job of communicating and marketing the value of IT," said Malcolm C. Fields, CIO at HON Industries Inc., a Muscatine, Iowa-based maker of office furniture and fireplaces. Trying to change the perception of IT's value after

the threat of budget cuts arises "is very difficult because most organizations become skeptical in times of austerity," said Fields. That's why it's essential for IT managers to communicate effectively during boom times, he added.

IT departments that fail to communicate the value of technology investments to senior management "do absorb larger budget cuts," said Mark Endry, CIO at software vendor J.D. Edwards & Co. in Denver. That doesn't mean IT

organizations with internal marketing programs will be immune to the budget ax, Endry said. But business managers who understand the impact that IT has on their companies can make more informed decisions about cuts, he added.

Glenn Palmiere, CIO at G. Pierce Wood Memorial Hospital in Arcadia, Fla., said that when times are tough, some IT projects will fall prey to budget cuts no matter how mission-critical they may appear to be.

Palmiere said his group "continually cost-justifies every dollar we spend" based

on the value that IT can provide to end users at the hospital. Without the internal marketing that the IT department has done, "the cuts would have been more severe than they have been," he said.

Amy Courter, vice president of IT at Valassis Communications Inc., a marketing services firm in Livonia, Mich., said she has found that through one-on-one communication with business executives, she "can often achieve the results that I need — with a lot of work."

But for some IT managers, "it's a matter of them not having any structure," said Patricia Jaramillo, president of Creative IT Marketing. "There are a lot of them who send out e-mail updates [to senior management] that are very technology-focused and don't express the business side." ■

Showing IT's Value

Meta Group and Creative IT Marketing offered the following advice for better communicating the value of IT to business executives:

ASSIGN specific IT workers to handle internal marketing and communications duties.

CREATE a product and services catalog that makes it clear what your IT department does for end users.

SET UP quarterly performance and progress reviews with individual business units.

SEND OUT newsletters and hold user briefings or "town hall" meetings with business managers on a regular basis.

FIND OUT what users value and how they measure IT success.

Retiring Microsoft Official Urges Open-Source Embrace

Vendor must move past PCs, says farewell note

BY JORIS EVERS

Microsoft Corp. must embrace the diversity of open-source software or face oblivion, David Stutz, a departing Microsoft manager, wrote in a farewell letter to the company.

Stutz, a respected technical thinker at Microsoft, sees networked software as the future of computing. Open-source software is already there, but Microsoft still has to move past its PC-centric roots, he wrote. "If Microsoft is unable to innovate quickly enough, or to adapt to embrace network-based integration, the threat that it faces is the erosion of the economic value of software being caused by the open source software movement," Stutz wrote in the letter that he posted on his Web site, www.synthesist.net/writing.

"Useful software written above the level of the single device will command high

margins for a long time to come. Stop looking over your shoulder and invent something!" he wrote to Microsoft. "If the PC is all that the future holds, then growth prospects are bleak." Stutz left Microsoft earlier this month. He held several key positions there, including chief architect for Visual Basic and, most recently, group program manager for Microsoft's Shared Source program, the company's answer to open source.

Microsoft said it isn't un-

Microsoft cannot prosper during the open source wave as an island, with defenses built out of litigation and proprietary protocols.

DAVID STUTZ, FORMER PROGRAM MANAGER, MICROSOFT

common for its recently retired employees to write open letters. "David Stutz has been an important contributor to Microsoft's open-source thinking, and Microsoft agrees with much of the vision Dave has for the future," the company said. However, the statement added that "breakthrough innovations will come mostly from commercial software companies such as Microsoft."

Stutz said he worries that efforts to recover from perceptions of the company as "politically inept" and that a focus on being the lowest-cost commodity software producer will empower managers and accountants at Microsoft rather than the visionaries.

Microsoft's "denial" when it comes to networked computing is understandable, because the company built its empire on the notion of the PC as the natural point for hardware and application integration, Stutz said. However, he added, "network protocols have turned out to be a far better fit for this middleman role."

"Microsoft still builds the world's best client software, but the biggest opportunity is no longer the client. It still commands the biggest margin,

but networked software will eventually eclipse client-only software," Stutz wrote.

Microsoft products due out later this year, such as Windows Server 2003 and the successor to Office XP, will offer more networked features than the previous versions, the company has said.

The greatest threat to Microsoft isn't the Linux operating system, but applications, Stutz said. As the quality of open-source software improves, there will no longer be a need for Microsoft Office's one-size-fits-all suite of applications, he explained.

"Open source software is as large and powerful a wave as the Internet was," he wrote. "Microsoft cannot prosper during the open source wave as an island, with defenses built out of litigation and proprietary protocols."

Steven Milunovich, a vice president at Merrill Lynch & Co. in New York, agreed that Microsoft needs to innovate more. "Microsoft must notch up the innovation component to do well in new areas," he stated in a report last week. ■

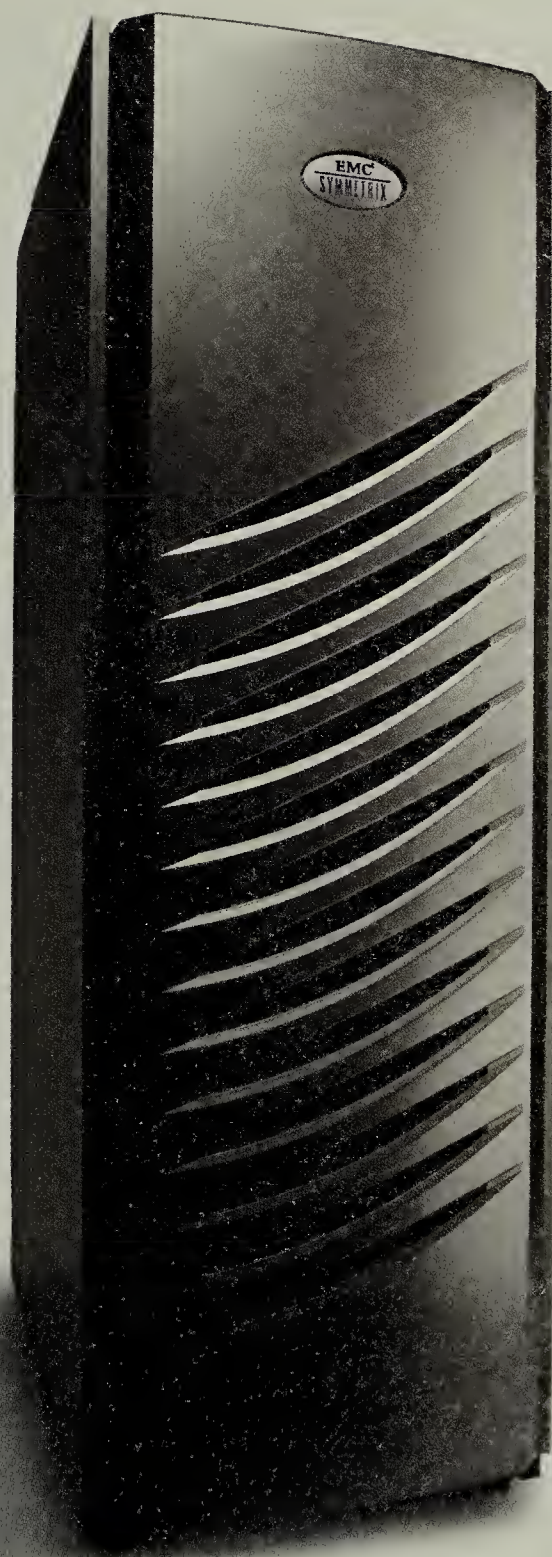
Evers is a reporter for the IDG News Service.

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Reducing Software Flaws Key to Security, Users Say

Focus on vulnerabilities seen as most important part of national strategy

BY DAN VERTON

OF THE FIVE main priorities set forth in the National Strategy to Secure Cyberspace, users and security experts pointed to the goal of working to reduce software and Internet vulnerabilities as the

CYBERSECURITY

one that could actually make a difference in the near term.

Released Feb. 14 as part of the Bush administration's multipronged effort to develop a program for reducing cyberspace security threats and vulnerabilities, the national strategy calls for a concerted effort across four major components of cyberspace: the key Internet protocols; digital control systems, such as those that manage the flow of electricity; software and hardware components; and physical infrastructure interdependencies.

Many users and security experts acknowledged the need to improve critical protocols, such as the Domain Name System (DNS); the Border Gateway Protocol (BGP), which enables routing information to be exchanged between networks; and the current version of the Internet Protocol, which is now being migrated from IPv4 to IPv6 for improved security. But the majority of users who spoke with *Computerworld* last week remain convinced that the most pressing challenge is improving software security.

Software Comes First

"It doesn't matter how well we secure DNS, IPv6 [and BGP]," said a security administrator at the Virginia Polytechnic Institute and State University in Blacksburg who requested anonymity. "If we fail to address the vendor-induced vul-

nerabilities of client machines, then everything else will be compromised."

Last July, the university started requiring software vendors to prove that their products aren't susceptible to the top 20

vulnerabilities listed by the FBI and the SANS Institute.

"Every major attack on the Internet since 1986 has involved at least one of two factors: weak configurations or software flaws," said Jeff Shawgo, a former security administrator at a major health care company who is now an independent consultant.

"Our software economy pushes time to market above all else," he said, adding that software vendors must be held to a specific time requirement for sending fixes to users.

But getting software patches quickly isn't the only issue,

said Susan Bradley, a security manager at Tamiyasu, Smith, Horn and Braun Accountancy Corp., a law firm in Fresno, Calif. Security patches designed to fix vulnerabilities often end up "breaking" other applications, she said.

"We must [then] determine whether the vulnerability exposed by not patching is worth the risk of patching," she explained. This process has left Bradley and her staff "shellshocked" from having to decide if a vulnerability warrants a patch that will almost certainly impact the firm's productivity, she said.

Vendor Action Required

Clint Kreitner, president and CEO of the Center for Internet Security in Hershey, Pa., said operating system vendors need to start shipping products with at least a baseline level of security settings in place as the factory default.

Application vendors also need to stop using practices such as requiring root-level

access for software installs, since that activates certain services that, if left on, could send user names and passwords in clear text; using random port numbers that can't be filtered properly; and allowing ephemeral network connections from outside the user organization's network, Kreitner said.

Other users said all of this will require more than good intentions on behalf of the government. To be effective, the national strategy will require incentives and negative repercussions and possibly regulation — something that remains on the table, according to Bob Stephan, special assistant to Secretary of Homeland Security Tom Ridge for information analysis.

"If the DHS [U.S. Department of Homeland Security] is serious about creating real security real fast, it should do what government does best: create incentives that make what is best for homeland security best for the organizations that provide and use networked computing devices," said Gerald L. Jenkins, head of the IT group at Goldberg, Kohn, Bell, Black, Rosenbloom & Moritz Ltd. in Chicago.

But in the end, "the federal

Plan of Attack

The National Strategy to Secure Cyberspace calls for:

IMPROVING key Internet protocols, such as DNS, BGP and IP; promoting improved routing through address verification and out-of-band management — separate control networks used to counter distributed denial-of-service attacks.

FOSTERING development of trusted digital control systems for critical industries, such as energy and telecommunications.

REDUCING software vulnerabilities by improving patch distribution and encouraging software developers to promote out-of-the-box secure installation.

UNDERSTANDING infrastructure interdependencies and improving physical security for cyberinfrastructure.

WORKING with service providers to develop a code of conduct for network management.

government may be forced to confront the hated 'R word' — regulation," said Jenkins. And a package of incentives that contains both "carrots and sticks" need not be heavy-handed or burdensome; it can be "precisely tailored," he said. ▀

OASIS Ratifies Access-Control Standard

Only a small piece of Web services puzzle, analyst says

BY CAROL SLIWA

A major standards body last week announced the ratification of a standard that could benefit companies that need to control user access to Web services or secured information over the Internet.

The Extensible Access Control Markup Language (XACML) is an XML specification that can be used to describe authorization policies in an open, interoperable way.

But it's unclear how great an impact XACML will have in the community of vendors supporting Web services,

since the newly anointed standard from the Organization for the Advancement of Structured Information Standards (OASIS) is only one small piece of the Web services security puzzle, said Jason Bloomberg, an analyst at Zap-Think LLC in Waltham, Mass.

Bloomberg said he wouldn't be surprised to see XACML merge with another

Web services standard, such as Web Services Policy (WS-Policy).

Kevin Cronin, chief enterprise architect for financial services at Boston-based Niteo Partners Inc., said he's a bit worried about overlapping standards at this early stage, since no

one wants to do work that might later have to be discarded if another standard becomes the accepted one.

Cronin added that he thinks the issue XACML addresses is "very real" and needs to be dealt with in order to ensure more efficient and more secure policy management, enforcement and auditing.

Sun Microsystems Inc. announced last week the release of an XACML implementation under an open-source li-

cence. The company claimed that it will help developers build secure Web services and applications because they will no longer have to concern

themselves with the patchwork of proprietary access-control policy languages.

But it's unclear when or whether other vendors will build to the standard. Paul Patrick, chief security architect at BEA Systems Inc. in San Jose, said that even though BEA served on the standard's technical committee, it currently has no plans to support XACML in products. Patrick said authorization providers are more likely candidates.

A spokesman for Microsoft Corp. said the company has no plans to support XACML either. He added that Microsoft considers WS-Policy and WS-Security to be the more complete framework for addressing needs in this area. ▀

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BRIEFS

Lucent CEO Adds Chairman's Job

Lucent Technologies Inc. named Patricia Russo, its president and CEO for the past 13 months, to the additional position of chairman. Russo, 50, takes over the job from Henry Schacht, who will remain on the networking equipment vendor's board as an outside director. Schacht, 68, had been chairman of beleaguered Murray Hills, N.J.-based Lucent since October 2000.

Alcatel Builds SIP Into Comm Server

Paris-based Alcatel this week plans to release an IP-based voice and data communications server that supports the Session Initiation Protocol (SIP), which governs how IP sessions start and stop. Alcatel said OmniPCX Enterprise will be accompanied by Linux-based communications management software and several other products, including a SIP-compliant phone terminal.

Staples Upgrades Procurement Site

Staples Inc., a Framingham, Mass.-based office supplies retailer, said it's using IBM's WebSphere Commerce Business Edition software to power an upgraded version of its business-to-business procurement Web site for corporate customers. StaplesLink 4.0 includes navigational changes and new features such as the ability to track orders placed online or by phone or fax.

Short Takes

NETWORK ASSOCIATES INC. in Santa Clara, Calif., released a high-end version of its McAfee WebShield security appliance and upgraded the software in its two existing models. . . . **MICROSOFT CORP.** withdrew a second beta-test release of Office 2003 and said the software had been inadvertently posted on its Web site for developers.

Continued from page 1

HIPAA Rules

The data security rules required by the Health Insurance Portability and Accountability Act (HIPAA) became law last week with their publication in the Federal Register. But they won't take effect until April 21, 2005, according to the Centers for Medicare & Medicaid Services (CMS), which are part of the U.S. Department of Health and Human Services.

Nonetheless, the standards are expected to become the de facto security guidelines for HIPAA data-privacy rules that become effective this April, said Mary Henderson, vice president of IT compliance and director of the national HIPAA program at Kaiser Permanente Health Plan Inc. The security rules were supposed to have been developed first but are five years behind schedule.

The Baltimore-based CMS spelled out what the health care industry should strive to do on data security (see box). But it dropped many proposed technology requirements that were in an earlier version of the security rules and made them optional for companies.

Karen Trudel, deputy director of the HIPAA standards office at the CMS, said the new rules were crafted to be "technology-neutral" and to give companies wide latitude in developing their information security systems and procedures. For example, encryption of health data transmitted over the Internet is no longer mandated and can be based on risk assessments by companies.

If a doctor sends an e-mail to another physician about a patient consultation, encryption may not be necessary, Trudel noted. But if "you're a large [health care] organization sending a bunch of transactions, then you would want to encrypt," she said.

Jim Klein, an analyst at Gartner Inc., said the new flexibility should reduce the total cost of complying with the HIPAA security rules by at least 50%. He wouldn't disclose specific cost estimates, but Gartner in

Protecting Health Data

Although it didn't mandate the use of specific IT security technologies, the CMS said health care companies should:

- Ensure the confidentiality, integrity and availability of all health care information that's protected under HIPAA.
- Protect their systems against security threats or hazards, including hacking attempts.
- Make sure their entire workforces are prepared to comply with the HIPAA security standards.
- Use computer security guidelines posted online by the National Institute of Standards and Technology to aid their risk assessment efforts.

October released survey results that estimated average compliance costs of about \$3.7 million for insurers and \$2 million for providers.

But the flexibility also puts the onus on companies to carefully weigh the risks attached to their IT compliance plans, said Jeff Fusile, a consultant at New York-based PricewaterhouseCoopers. The lack of mandated technologies and procedures requires health care organizations "to think

about and determine what is reasonable," he noted.

Oakland, Calif.-based Kaiser is already starting that process, according to Henderson. She said the two years before the security rules take effect will go by "awfully fast" for an organization as large as Kaiser, which has 8.4 million members. Henderson said Kaiser officials don't yet know how much it will cost the company to comply with the rules.

Richard Marks, a lawyer at

Continued from page 1

Telecommuters

too many phone lines and broadband connections. A business may "end up with costs that are higher per person than if there is a standardized program," said Gil Gordon, a telecommuting consultant in Monmouth Junction, N.J.

Moreover, the absence of policies for securing data — covering everything from firewalls in home offices to the shredding of confidential faxes — could expose a firm to problems, security experts said.

But even if all the policies and procedures are in place, as they were for Providence Health Plan in Beaverton, Ore., technology problems can create complications. The multi-state health care system put in a Citrix System Inc. server-based remote access system that uses a virtual private network (VPN).

"We did a lot of hard work on making sure [the telecommuting policy] was crafted correctly," said Chris Apgar, an IT

security officer at Providence. "Where it fell apart is we hadn't tested our Citrix VPN connections well enough," he said, though it was a problem with the VPN rather than Citrix.

The VPN didn't work well in part because it was new technology for employees, and it didn't mesh well with Providence's legacy applications. Apgar's advice to any company "is to test the heck out of it" before implementing the technology component of a telecommuting program.

Mattress Giant is using another method for connecting remote employees. Workers connect to its systems via remote access servers operated by Expertcity Inc. in Santa Barbara, Calif. That system, which provides an encrypted connection, didn't require extensive training, said Williams.

About one in five workers, or 28 million employees, participates in some form of telecommuting, according to a telephone survey of 1,170 randomly selected U.S. households that was conducted in 2001 by the International Tele-


Seattle-based law firm Davis Wright Tremaine LLP, said the combination of the HIPAA data privacy rules and the open-to-interpretation security standards could become a honey pot for law firms that specialize in class-action suits. Such firms believe HIPAA could be as lucrative as "asbestos and breast-implant litigation combined," Marks said.

Concerns about litigation could also affect the use of technologies such as wireless LANs in hospitals, he added.

Marne Gordon, director of regulatory affairs at TruSecure Corp., a Herndon, Va., consulting firm, said litigation-wary companies also may stick with paper-based approaches instead of rolling out automated medical records and physician order-entry systems. ▀

MORE RULES

CMS last week also posted its final rules for electronic health care payment transactions:

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work Association & Council (ITAC) in Wakefield, Mass. That figure is expected to rise by millions when the 2002 survey is released next month, said Tim Kane, president of ITAC and CEO of Kinetic Workplace Inc., a telecommuting consultancy in Pittsburgh.

"Telework took a huge spike" with last week's storm, said Kane, much of it on an ad hoc basis by employees at companies without formal programs. The storm also may have reinforced to employees and employers that they need to do telecommuting — or simply that they can do it, he said. ▀

HOW TO SET UP

PLAN: Avoid an ad hoc telecommuting program, which could increase costs and security risks.

STANDARDIZE: Create telecommuting policies and IT packages for employee support. Consider issues such as broadband providers' differing VPN requirements.

SET POLICIES: Include work environment requirements and security issues, such as connecting to a third-party LAN.

1. MICROSOFT NET SERVER 2003 SUPPORT 2. SUPPORT FOR MICROSOFT AUTOMATED SERVER RECOVERY 3. SUPPORTS TARGETING BACKUPS TO IBM TIVOLI STORAGE MANAGER SERVER 4. HOT-SWAPPABLE DEVICE WIZARD ELIMINATES REBOOTS 5. FASTEST, SIMPLEST INSTALLATION FOR WINDOWS DATA PROTECTION - FROM SHELF TO BACKUP IN 10 MINUTES 6. SQL "GUIDE ME" WIZARD 7. **Fastest Exchange Server Backup & Restore** 8. WINDOWS BUSINESS APPLICATION BACKUP WITHOUT INTERRUPTION 9. FIRST ANYWHERE INTERNET INTERFACE 10. SERVERFREE OPTION 11. ENHANCED MANAGEMENT OF REMOTE SERVERS WITH ADMIN PLUS PACK OPTION 12. HIGH-PERFORMANCE REMOTE SERVER BACKUP WITH INTELLIGENT IMAGE OPTION 13. SELECTION OF SNAPSHOT TECHNOLOGY THROUGH ADVANCED OPEN FILE OPTION 14. HIGHLY INTUITIVE REDESIGNED 32-BIT GRAPHICAL USER INTERFACE 15. WEB-BASED INTEREACE FOR WINDOWS .NET AND NAS APPLIANCES USING SAX 16. IMPROVED ALERTING & NOTIFICATION SETUP 17. ADDED SUPPORT FOR LOTUS DOMINO 5.3, 5.10 & 6 18. INFORMATION DESK VIEW HIGHLIGHTS COMMON ITEMS 19. UNIX, LINUX & MAC INCREMENTAL & DIFFERENTIAL BACKUP

20. HTML FORMATTED & COLOR-CODED JOB LOGS 21. "SUCCESS WITH EXCEPTIONS" JOB CLASSIFICATION 22. AUTOMATICALLY CREATE SEVERAL TYPES OF BACKUP MEDIA 23. EXCHANGE GUIDED SET WIZARD 24. EXCHANGE EXCLUSION 25. MEDIA TRACKING BY VOLUME 26. USER-DEFINED THROUGH REMOTE 27. AUTO-DISCOVER JOB FOR NEW SERVERS & DATABASES 28. USER-INITIATED ONLINE PRIVACY UPDATES AND SCHEDULED TITLES 29. SINGLE-INSTANCE STORAGE OF EXCHANGE ATTACHMENTS 30. PERCENTAGE OF BACKUP MEDIA USED/AVAILABLE 31. SHAREPOINT LITERAL SERVER DOCUMENT LEVEL RESTORE 32. CONTROL FILE SIZE LIMITS 33. SYSTEM SERVICES MANAGEMENT TOOLS 34. FASTER BACKUP & RESTORE WITH BUILT-IN AGENT ACCESS FOR 35. TIGHTER LOGIN AND SECURITY PROTOCOLS 36. NEW ADVANCED REPORTS 37. PICK-LIST SELECTION 38. NETWORK BACKUP NETWORK 39. BACKUP TO NETWORK BACKUP NETWORK 39. USER-CUSTOMIZABLE VIEWS WITH UI 40. REMOTE BACKUP OF EXCHANGE MAILBOXES 41. MEDIA AND LIBRARY SUPPORT 42. VIEW OF BACKUP HISTORY 43. SUPPORT FOR VOLUME SHARED 44. ENHANCED JOB HISTORY 45. BACKUP JOB PRIORITIZATION 46. LOGON AND LOGOFF WITH ENSURE PROPER PERMISSIONS 47. OUTLOOK-STYLE CALENDAR-BASED JOB SCHEDULER 48. SIMPLIFIED CLUSTER CONFIGURATION & INSTALL WIZARD 49. TAPE COPY FEATURE INCLUDING DRIVING AND TAPES 50. NEW BACKUP EXEC SYSTEM MANAGEMENT TOOLS 51. NEW COLOR-CODED LOG FILES 52. MEDIA TRACKING BY CAPACITY 53. MEDIA SIZING TO ENSURE NOVICE USERS TO SET UP BACKUP MEDIA 54. ENHANCED PRE-POST JOB COMMAND FOR LOCAL/REMOTE SERVERS 55. AUTOMATIC JOB CANCELLATION SETTING 56. NEW ENHANCED ALERT MANAGEMENT 57. AUTO-RESPOND TO NON-CRITICAL ALERTS 58. SYSTEM SUMMARY CONSOLIDATES IMPORTANT INFORMATION 59. SUPPORT FOR MULTIPLE ACCOUNTS 60. HANDLING RULES 61. INTEGRATED HTML HELP SYSTEM HOT LINKS TO APPLICATION 62. FULL INCREMENTAL & DIFFERENTIAL BACKUPS USING MODIFIED TIME 63. EASY IDENTIFICATION OF TAPE TYPE WITH BAR CODE RULES 64. SCHEDULING OF UTILITY JOBS FOR DRIVE AND LIBRARIES 65. SINGLE-INSTANCE BACKUP OF NTFS VOLUMES 66. JOB TEST RUN PRE-CHECKS PARAMETERS TO ENSURE JOB COMPLETION 67. MEDIA SPANNING INCREASES STORAGE CAPACITY 68. DIFFERENTIAL BACKUP OF EXCHANGE MAILBOXES 69. EVENT ID LOOKUP VIA WEB BROWSER 70. BUILT-IN DATABASE MAINTENANCE LOGIC 71. EXCHANGE INDIVIDUAL PUBLIC FOLDER RESTORE 72. VERITAS VOLUME MANAGER FLASHSNAP INTEGRATION FOR SQL 73. PUSH INSTALLATION TO REMOTE SERVERS WITH ADMIN PLUS

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Users Tap Energy Management Systems to Reduce Power Costs

Analysts: Skyrocketing energy prices fuel increased interest in technology

BY THOMAS HOFFMAN

THE ENERGY CRISIS that hit California starting in 1999 drove companies such as Bank of America Corp. to install energy management systems designed to make their facilities more power-efficient. Now the 50%-plus jumps in energy costs in the Northeast and other areas this winter are expected to have the same effect.

Jill Feblowitz, an analyst at AMR Research Inc. in Boston, said catapulting prices for heating oil and other forms of energy give users more incentive to foot the bill for energy management software, which can cost \$150,000 to \$450,000 for an average installation.

Businesses that make use of such systems should be able to achieve modest cost savings, especially during peak energy

demand periods, when utilities charge customers premium prices, noted Zarko Sumic, a Meta Group Inc. analyst based in Bellevue, Wash.

For Bank of America, that kind of promise was enough to justify an investment last year in a neural network-based energy management system de-

veloped by WebGen Systems Inc. in Cambridge, Mass. The Charlotte, N.C.-based

bank is using the software to monitor and control energy consumption at 78 office buildings in California, where it has a substantial presence.

In the wake of the California energy crisis, bank executives wanted to reduce energy usage at the facilities and get a better understanding of how much power they consume, said Larry Larson, a senior vice president at Bank of America's San Francisco office.

Larson said the WebGen software interfaces with the bank's building management systems, letting facilities managers "float" heating or air conditioning to different temperatures in order to pare energy costs without making the offices uncomfortable for the buildings' occupants.

When it bought the software, Bank of America made a "very, very conservative estimate" that it could reduce energy consumption at the California buildings by 5% last year, Larson said. The bank surpassed that estimate and got a one-year payback on the software, he said, although he wouldn't disclose what it spent on the technology. Bank officials are now looking to use the system to help manage other buildings around the country, Larson added.

The California Department of General Services is another WebGen user. When the state's energy crisis began, "we were facing energy blackouts, and nobody knew what was going on," said Randy Fer-

guson, chief of energy management at the Sacramento-based agency. Reducing power loads was the top priority for state officials, Ferguson added. "Saving money was secondary at that point," he said.

But since the department began installing the energy management software at 65 state-owned buildings in Au-

gust 2001 as part of a conservation program, power costs have been cut by up to 20% in many of those facilities, Ferguson said. He added, however, that it's tough to pinpoint how much of the savings is directly attributable to the software.

Meta's Sumic said other vendors that sell energy management software include The Trane Co., Honeywell International Inc. and Silicon Energy Corp., an Alameda, Calif.-based company that last month agreed to be acquired by Spokane, Wash.-based Itron Inc. [QuickLink 36314]. ▀

INFORMATION ECONOMICS

Energy Tools Head to the Classroom

After installing WebGen's software in late 2000 to help lower electricity usage, the University of Miami is now looking to take the technology to another level.

Victor Atherton, associate vice president for facilities administration at the Coral Gables, Fla.-based university, said the school is working to integrate the software with its classroom scheduling system and an application that automatically locks unoccupied rooms.

For example, intelligent agents in WebGen's software

could scan the scheduling system to identify blocks of classrooms that aren't due to be used for an extended period, Atherton said. The software could then turn off the air conditioning in those rooms and restart it when classes resume.

Atherton said he hopes to have some level of integration in place within six months. School officials expect both energy and staffing savings. "Logic tells us that there's gold in them thar hills," he noted.

- Thomas Hoffman

ROI Report Urges Wary Approach to CRM Projects

BY THOMAS HOFFMAN

As IT managers consider which technologies to invest in this year, they should exercise caution with customer relationship management (CRM) projects but expect high returns on investments in business intelligence software.

That's the upshot of a report issued last week by Wellesley, Mass.-based Nucleus Research Inc. on the best and worst technologies for ROI this year. The report was based on a mix of user case studies and product road maps set by technology vendors, the firm said.

CRM software in particular was cited as a potential source

of ROI danger, as it was in an earlier report that the market research firm released in September [QuickLink 32707].

The chances for companies to overspend "are greater with CRM" than with many other types of IT projects, said Ian Campbell, president and CEO at Nucleus. "Think of CRM as the Big Dig of the technology world — you can go way over your head," Campbell added, referring to a highway construction project in Boston that's years past deadline and billions of dollars over budget.

To avoid that scenario, Nucleus analyst Rebecca Wettemann suggested two rules of

thumb when planning CRM projects: never spend more than twice what you paid for the software on consulting, and be sure to set project milestones that can be achieved within six months.

ROI Potential

While she's not convinced about the validity of those rules of thumb, Cathie Kozik, CIO at Tellabs Inc. in Naperville, Ill., said she agrees that IT managers should be cautious about CRM projects.

"I've yet to find a company that will acknowledge that they've achieved their expected ROI on any large CRM investment," Kozik said. "The most successful seem to have focused on delivering CRM functionality in meaningful pieces rather than going for a

full-blown implementation."

For its part, Tellabs, a communications equipment maker, opted to take a step-by-step approach to CRM "after looking at wins and losses at other companies," she added.

Wettemann said there's strong ROI potential with business intelligence tools, especially as pressure mounts on data analysis software vendors to improve the usability of their products in anticipation of Microsoft Corp. making a bigger splash in that market.

There are also solid ROI opportunities for high-volume manufacturers that are considering using supply chain technologies like radio-frequency identification (RFID) tags to help manage product inventories and shipments more effectively, Campbell said.

But RFID costs are still high, Campbell added. As a result, it might be wiser for small manufacturers to invest in other tools "with an eye toward RFID in the future," he said.

Ron Fijalkowski, CIO at Strategic Distribution Inc. in Bensalem, Pa., said he thinks supply chain management technology in general "offers the best ROI given our current economic constraints, since it focuses on an issue with clear, measurable costs."

Strategic Distribution, a \$300 million supplier of manufacturing maintenance and repair parts, is working to automate tasks such as the preparation of purchase orders, invoices and advance shipping notices, Fijalkowski said. But he declined to specify the software that it's using. ▀



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Cell Carriers to Add Push-to-Talk Services

BY BOB BREWIN

The four top operators of national cellular networks in the U.S. last week all said they will

offer push-to-talk services that make cell phones work like walkie-talkies, although their plans to do so remain unsettled.

Currently, Nextel Communications Inc. is the only U.S. carrier that supports push-to-talk technology, which lets cell

phone users connect to one another by pushing a single button. AT&T Wireless Services Inc., Cingular Wireless, Sprint PCS Group and Verizon Wireless each disclosed plans to add similar services.

Spokesmen for Overland Park, Kan.-based Sprint PCS and Bedminster, N.J.-based Verizon Wireless said the two companies this year plan to introduce push-to-talk services on their networks, which are built around Code Division Multiple Access standards. But neither would specify a start date or identify the technology that will be used to make the services possible.

AT&T Wireless in Redmond, Wash., and Cingular Wireless in Atlanta indicated that they intend to support push-to-talk functionality via IP-based technology that's being jointly developed by Nokia Corp., LM Ericsson Telephone Co. and Siemens AG.

Group Effort

Nokia, Siemens, and Ericsson announced at last week's 3GSM World Congress conference in Cannes, France, that they're working together to define specifications for push-to-talk capabilities on Global System for Mobile Communications (GSM) networks.

The three companies said they will use an IP multimedia subsystem created by the Third Generation Partnership Project mobile standards group for delivering integrated voice and data over GSM networks with General Packet Radio Service (GPRS) extensions. Push-to-talk users will be given IP addresses for their phones and must then program in the addresses of the users with whom they want to connect.

Trials of the GPRS push-to-talk service are due to start in the second half of the year, according to the three cell phone makers. But neither AT&T Wireless nor Cingular would say when they expect to start offering the service to their customers.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., called push-to-talk technology "a phenomenon like instant messaging that will drive wireless sales" to both consumers and corporate users. ▀

Joris Evers of the IDG News Service contributed to this report.

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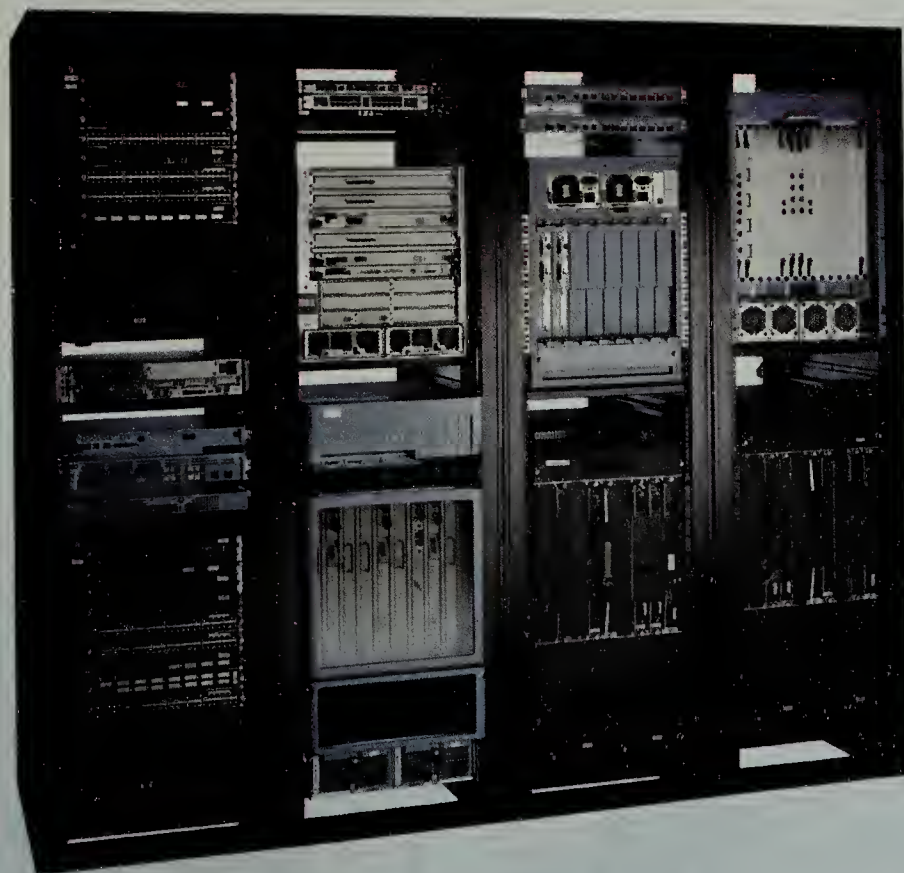
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PATRICIA KEEFE

The Way to Win

YOU WON'T FIND ME shoveling snow this week. I'll be in sunny Arizona at *Computerworld's* annual leadership summit, along with some 450 IT leaders soaking up two days of peer networking and problem-solving while celebrating the accomplishments of 100 of the brightest strategists and visionaries in IT.

OK, maybe there'll be a little golf. If anyone needs a spring break right now, it's IT professionals. Squeaky tight budgets, stingy staffing and suspicious business partners enforcing rigid ROI requirements — that's a lot to juggle while managing to run a successful, strategic and resourceful organization.

But it can be done, and it is being done, more often than IT gets credit for. The fact that you're getting things done is of greater importance to the company than your business peers realize. As I've said before, no other department is as uniquely positioned to understand the inner workings of a company. Your business peers solve problems within their units — IT does that and more, often recognizing or solving problems *between* departments and even, now and then, rescuing whole companies and enabling the creation of new corporate identities.

Just take a look at our second annual Best in Class award winners in this week's issue (starting on page 43). Chosen by a panel of their peers from among the projects of our 2003 Premier 100 winners [QuickLink 34584], these 10 winning IT teams epitomize the monumental payback that cutting-edge IT leadership, creative vision and determined follow-through can accomplish.

But it's not the scope of the projects, their dramatic time savings or even their delivery of measurable ROI that ties them together. The connection lies in two critical attrib-



PATRICIA KEEFE is a *Computerworld* editor at large. You can contact her at patricia_keefe@computerworld.com.

utes, one a seeming no-brainer, the other a road not often taken.

Most important is a focus on the user. Whether ensuring user involvement or targeting user needs, or even forging closer ties to the customer base, the IT executives running these projects never forgot who the client was. This guaranteed user buy-in, which drove acceptance, engagement and the success of many of our award-winning entries.

At Office Depot, a data warehouse project achieved its goals by tapping into the natural competitiveness of store personnel. A not-so-obvious payoff: paving the way for even more difficult projects in customer relationship management.

Making sure employees had a reason to use a new mobile application

proved a winning approach at Celanese Chemicals. It's not enough to build systems that improve business processes and deliver information faster to workers. If you can't motivate users — in this case, by feeding the sales force's addiction to e-mail — then you'll never get the traction you need to succeed.

And it was relentless communication with users that proved to be a key driver of project success at Corning Life Sciences and the Tennessee Valley Authority.

The second common thread is risk. Proving that even in these turbulent times it pays to think and push outside the box, Aviall has IT visionaries to thank for its new lease on life and a new life to live. "Our competitors thought we were insane. Some investors asked for my resignation," acknowledges project leader Joseph Lacik Jr. Instead, the controversial rebuilding of Aviall's infrastructure was wildly successful. Lacik didn't just buck conventional wisdom; his team also ensured customer buy-in by designing around their needs.

Paying attention to the same basics — team-building and finding ways to sell projects to both users and skeptical business partners — can make your next IT project a winner, too. ▀

PIMM FOX

Simulate Your Office's Future

LOOK AROUND. No, really, look around. Does your workplace operate in ways even remotely similar to the manner it did, say, four years ago? If not (because of job cuts, office closures, geographic changes, expansion, whatever), then ask yourself if it would have been useful to have seen a simulation back then of how your IT shop works today.

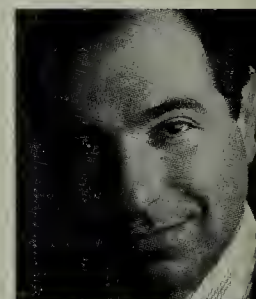
I'm guessing that you don't work for an enlightened firm that uses simulation software to present various business and work scenarios in order to encourage cross-training or broaden the knowledge base of all employees. Few of us do.

It's not that the tools aren't there. Schools across the country use simulation software developed by New York-based nonprofit Classroom Inc. to expose students to a variety of workplace skills. Interested in what it's like to be the manager of a paper mill? Classroom Inc. has a module to deepen your understanding of environmental topics, land use, conservation, air quality and recycling.

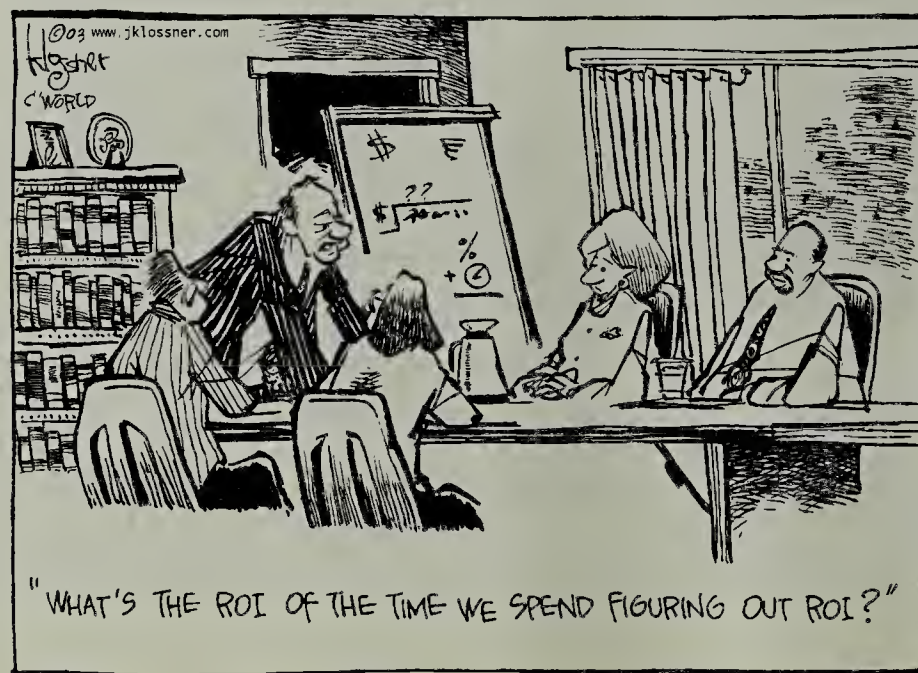
The modules are designed for teams consisting of three students and teachers who have been trained to present the material as part of the school curriculum. According to Pamela Patton Cone, head of product technology at Classroom Inc., parent guides are also available for each simulation, and training services are always included with the software.

Some businesses are putting similar tools to use.

Managers at St. Louis-based utility Ameren Corp. use technology from Maumee, Ohio-based Root Learning Inc. to role-play, going through the decision-making processes they may encounter running the company. Questions such as, "Should an energy purchase take place, and what effect will a reduction in the workforce have on



PIMM FOX is a freelance writer in San Francisco. Contact him at pimmfox@pacbell.net.



overall production?" are available as part of the simulation package.

Some CFOs might balk at the idea, saying there's no real payoff for the costs involved in creating simulations. But they'd be wrong. The current tools can reuse a company's everyday forms and templates so that it doesn't have to spend time creating new forms to build simulations around. The simulated company really is your company.

But even with new tools to make it easier to build simulation modules, you must commit to keeping your corporate curriculum up to date, just as you would any technical textbook. Otherwise, you'll look dated. For example, the current version of Classroom Inc.'s software for students simulating the world of an IT project manager shows an office administrator greeting a new employee with talk of stock options. ▀

DAN GILLMOR

IT's Monopoly Addiction

INFORMATION technology folks must love monopolies. Otherwise, you wouldn't help create them.

Sure, you complain about lock-in, vendor arrogance, high costs and all the other woes that come with monopolies and the cozy oligopolies that seem to arise in so many industries — but notably in IT.

I don't think you're stupid or naive when you resign yourself to your fate. You are clearly aware of the upside and downside of doing business with dominant vendors. But you're addicted. Or, in pop psychology lingo, you're co-dependent.

The easiest explanation is the near-universal wish for standards. Competition — such as railroad tracks with different gauges — can be messy, as we've seen again and again. Users and suppliers gravitate toward single standards.

In technology development circles, no one wants to test a variety of devices and platforms, much less develop for all of them. One of my brothers, a software guy, says he'd be happiest — in theory — with just one operating system.

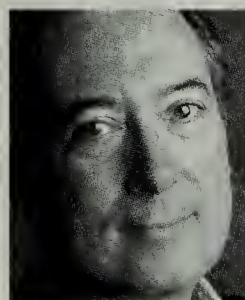
It still seems obvious to me that, in a world where information is the cur-

rency of the future, it's dangerous to allow one company or a small group of companies to control the standards. But it seems less obvious, apparently, to the U.S. government and most buyers of technology.

Monocultures in the physical world are widely understood to be risky. We are moving that way, unfortunately, in things like farming — where a single virus could, in theory, wipe out much of the world's corn crop in a single season, leading to untold human suffering. Yet our food supply is based on monocultures because they're more efficient. Today.

And that leads to the other main reason why monopolies, duopolies and oligopolies keep springing up: They're good business, largely because they're more stable — temporarily, at any rate — for buyers as well as sellers.

The desire for stability and account-



DAN GILLMOR is technology columnist at the San Jose Mercury News. Contact him at dgillmor@sjmercury.com.

ability can be summed up in the once-popular saying "Nobody ever got fired for buying IBM." Substitute Cisco, Microsoft or other big names, and the idea is much the same.

When IBM was absolute master of the IT universe, technology wasn't changing as quickly as it does today. But even then, buyers were looking for a level of security, an assurance that what they were buying

would still be working tomorrow and that someone would stand behind it.

The velocity of technological progress today gives even greater advantage, certainly in the short term, to the dominant companies, and for some of the same reasons. But does it also lead to long-term power? I believe it does, largely because of people's — and institutions' — logical aversion to disruption.

The path of least resistance is to buy

into whatever is dominant today. That's a mistake.

I have a policy for my personal technology purchasing. I balance my dependence, supporting nondominant companies whenever possible. I support worthwhile competitors, and sometimes I give up some small conveniences in the process — provided, of course, that the choices I make don't put me at a serious disadvantage in my work.

That's one approach. IT can do some of this, but it should employ another tactic, too: Push much harder for open, non-owned standards.

Cost is only one issue. The other is safety. I'm betting that open standards will soon be seen as the best approach for security, an increasingly important notion in a dangerous world. Disregard this at everyone's risk. ▀

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site: www.computerworld.com/columns

READERS' LETTERS

Let's Spread the Word: IT Is Tough

WITH OVER 20 YEARS' experience in IT, I can vouch for the truthfulness of Frank Hayes' refreshingly candid column "Tough Stuff" [QuickLink 36160]. I don't believe that many individuals outside of IT realize the daunting complexity of the projects that are routinely placed upon our shoulders. Perhaps the time is right to finally bring a real-world IT perspective to the fore. The result can only be smarter utilization of overtaxed IT resources.

Steven C. Huete
Advisory information engineer, Management Dynamics Inc., East Rutherford, N.J., SteveHuete@MgmtDynamics.com

"TOUGH STUFF" is good stuff. Now all we need is an article telling us how to get anyone

outside of IT (and a quarter of the managers in IT) to believe it.

Michael Sugden
Sacramento, Calif.

What to Keep

THE "ARCHIVE THIS" box accompanying the "Save That Mail" article [QuickLink 35594] is somewhat misleading. The storage requirements for lending documents and securities transactions aren't measured by minimum lengths of time from inception; they're measured from the completion of the transaction.

For most mortgage-related business, for example, this is seven years after the loan has been paid off or after the property has been transferred. In the case of securities, one must prove the cost basis when computing gain/loss, so the

IRS suggests that you maintain the original records for seven years (business) or three years (personal) after the stock disposition.

One of the things that people can't seem to agree upon is the exact retention requirements for any given transaction. What we need is a uniform method of calculating the retention period. An interesting conundrum: What backup/restore media/technology will exist 37 years after you satisfy your mortgage? Paper has worked in the past; will some form of electronic media have this longevity, and will we be able to read it?

Stephen Richard Levine
Franzel Mortgage Consultants, Westlake Village, Calif.

Pointing Fingers

IDON'T DISAGREE very much with what Robert Mitchell had to say in his column "Just Pin It on Microsoft" [QuickLink 35957], but I still blame Microsoft for much of the state of software quality today. Most of Microsoft's operating systems have suffered from quirky issues that are very tricky or impossible to track down. So the question that many software vendors subconsciously asked themselves was, "Why should we write great code

when 'good enough' seems to work — especially when the operating system is easily blamed?" Many supporters of open source are fed up with good enough. They want competition in the operating system and application server arenas again. They want systems that can be inspected, not closed systems. Sadly enough, some simply want the demise of Microsoft. I agree that Microsoft has done a great deal for computing. Its GUIs have been very good (aside from them changing all the time). And as Mitchell said, its products make good business sense.

Matthew Carpenter
Network and security consultant, Enterprise Information Systems, Grand Rapids, Mich.

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More letters on these and other topics are on our Web site: computerworld.com/letters

Law's Backers in Denial: ABA Hurt UCITA

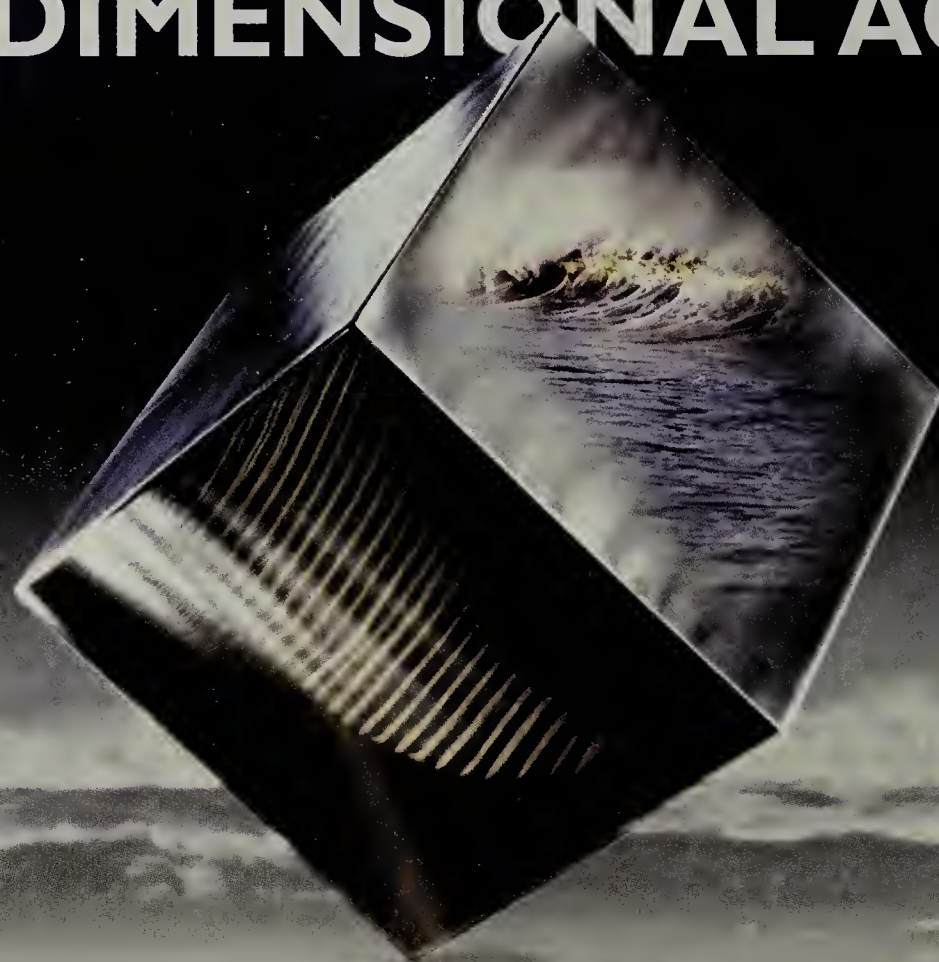
FOR THE NCCUSL to deny that the ABA's refusal to endorse UCITA won't hurt the law's chances is sheer nonsense [QuickLink 36372]. If the ABA had endorsed UCITA, the NCCUSL would have used that to prove that UCITA is vi-

able and pointed to the ABA's endorsement at every opportunity.
Anthony Davis
Chief operating officer/vice president, technology, Peridius LLC, Englewood, Colo., adavis@peridius.com

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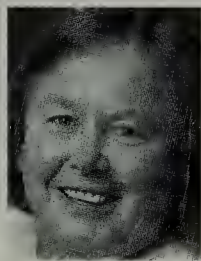
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Security Manager's Journal

A corporate merger forces Vince Tuesday to rearrange the IT security furniture as he struggles to integrate two different security environments — and rectify divergent security approaches. **Page 36**



Opinion

Tommy Peterson says a few small security steps by corporations can do more than grandiose government plans when it comes to reducing threats to the nation's Internet infrastructure. **Page 40**

QUOTE OF THE WEEK

“Our [contract workforce] spending was out of control, and we didn't consistently use processes that would allow us to know what we were using or where.” — Gary Anderson, manager, Carlson Companies Inc.

DESPITE SPENDING \$25 million a year on temporary workers, Carlson Companies Inc. was coming up short.

The hotel, travel and marketing company was working with a large number of staffing firms in hopes of maximizing choice and competition among suppliers. That didn't work out.

“Our spending was out of control, and we didn't consistently use processes that would allow us to know what we were using or where,” says Gary Anderson, manager of enterprise supplier management at the Minneapolis-based company.

The \$8 billion firm had 160 staffing companies on its vendor list, and it managed them and associated temporary workers through a hodgepodge of spreadsheets, e-mail and paper. “It was terribly labor-intensive and inconsistent,” Anderson says. “The whole process left a lot of gaps.”

Perhaps the biggest gap was in performance monitoring and management reporting. Carlson had no systematic or timely way to track the performance

Continued on page 28

COLIN JOHNSON



Taming TEMP COSTS

Temporary-workforce management software and service offerings can cut the hassles and costs of managing contract staff. **By Gary H. Anthes**

Taming TEMP COSTS

Continued from page 27

of suppliers and to use those performance measures to negotiate better services and lower rates.

Servicing the Problem

Anderson found a better way, using a relatively new breed of software for contingent-workforce management. Packages vary in scope, but most combine procurement, human resources and analytic functions. In some cases, vendors sell the software itself, but more often they offer it as a service that includes features such as validating and paying vendor invoices.

Vendors and analysts say these tools can trim total outlays for contingent workers by 10% to 15%. Savings come from better rates and better services that the systems help users negotiate, as well as volume discounts through consolidated spending, tighter controls over procurement practices and reductions in administrative labor. In addition, the systems speed up procurement and improve the quality of the temporary workers coming in, some users report.

Carlson selected the clickXG service from Peopleclick Inc. in Raleigh, N.C. Peopleclick's "vendor management" product performs functions in the areas of job requisition processing, candidate tracking and management, time and expense tracking, vendor invoice processing, and reporting and analysis.

Carlson now monitors and manages its vendors with a rigor that would have been impossible before, Anderson says. The company has reduced its suppliers from 160 to nine and uses clickXG to review the suppliers and their account managers in 34 categories every six months. It also reviews all temporary workers every 90 days.

Anderson says the system is saving Carlson \$1.5 million annually through rate reductions, volume discounts and incentives, and another \$1.5 million in areas harder to quantify, such as training and testing tools that it used to pay for but now gets for free from staffing vendors. The savings amount to just over 10% of the company's budget for temporary workers.

Some of the basic features of temporary-workforce management systems, such as purchasing, time and expense reporting, and accounts payable, already exist in other enterprise applications.

Luther Harris, professional and HR services procurement manager at Texas Instruments Inc., says an HR group at TI considered cobbling together existing in-house systems in order to manage more than \$100 million a year in contract workers. But the company decided instead to go with the Clarity services procurement software from CascadeWorks Inc. in San Francisco.

"The HR approach would have been costly and wouldn't have had nearly the functionality we have with [Clarity]," he says. "It would have handled the HR side of contract labor, but it wouldn't have improved the procurement process."

Harris says Clarity is saving TI 5% to 8% annually on its contract labor costs

TOOL TRADE-OFFS

Giga analyst Andrew Bartels sorts through the choices:

QuickLink 35981
www.computerworld.com

TEMPORARY MANAGEMENT

How to Automate

USE A SERVICE: Most organizations contract with a specialty company, such as Fieldglass or CascadeWorks. You'll pay a monthly service fee that's generally based on transaction volumes.

BUY SPECIALIZED SOFTWARE: Some companies license software, such as PeopleSoft's Services Procurement program, for in-house control and easier data integration.

LEVERAGE LEGACY SYSTEMS: Stitching together existing automated functions from in-house procurement, HR and accounting systems can work, but that strategy often faces integration obstacles, and the resulting system often lacks the features of specialized tools.

by making it possible to gain tighter control over "maverick" procurements, negotiate bigger supplier discounts and channel requisitions to preferred vendors.

TI uses Clarity on a remote services basis, but a one-time investment is necessary to set that up, Harris says. His IT staff had to develop software to construct the data feeds that go to CascadeWorks, to build in internal security features and to build interfaces to internal systems such as TI's accounts payable system. But all that required only a three-month effort, he adds.

While Harris advises against having in-house systems do double duty for both contract and permanent employees, Health First Inc. in Melbourne, Fla., does exactly that. It uses Workforce Central time and attendance software and the Visionware productivity tracking system, both from Kronos Inc.

in Chelmsford, Mass., to track permanent and contract nurses. Its procurement functions are mostly manual.

For some contract workers, such as clerical staff, Health First gets time and accounting data directly from the staffing agency. But the contract nurses are assigned employee badges and log in and out on Workforce Central. All resulting data — time, labor expenses and productivity — flows through the same systems as the data for the permanently employed nurses.

Finance staff at Health First use the Visionware product to monitor the productivity of both kinds of workers, says Cynthia Summers, senior HR information systems administrator. Being able to look at and compare metrics such as patient-to-nurse ratios for both types of worker, and doing so on a timely basis, is an important capability, she says.

Mixing Old and New

Two years ago, Verizon Wireless in Bedminster, N.J., selected the InSite "flexible workforce management" system from Fieldglass Inc. in Chicago. Verizon Wireless, which spends more than \$100 million annually on contingent labor, is a PeopleSoft Inc. user, but PeopleSoft had no comprehensive product for temporary-worker procurement at the time, says Cheryl Rowden, director of IT finance.

InSite replaces inefficient and error-prone procedures driven by e-mail, phone calls and paper. It creates worker requisitions for hiring managers, circulates them for approval and then sends them to staffing companies. It routes the resulting bids — there must be at least three — and résumés back to the appropriate departments at Verizon Wireless. When the selected workers arrive, they are issued passwords so they can enter their time into InSite.

Verizon managers approve the resulting electronic time sheets and InSite sends them back to suppliers, who use them for billing. The electronic billing is routed for approval, before being uploaded to the PeopleSoft accounts payable system. Just the automation of the invoice payment process — for some 500 invoices a month — is a tremendous benefit, Rowden says.

The system saved Verizon Wireless some \$6 million last year by eliminating overbilling, reducing overtime and unauthorized spending, and making bidding more competitive, she says. Those savings don't include efficiency gains that resulted from "replacing a whole lot of people and a whole lot of paper," Rowden adds. ■

The Temp Management Toolbox

Many vendors have introduced comprehensive contingent-workforce management systems for procuring, managing, analyzing and paying temporary workers.

Prominent vendors include the **Chimes** subsidiary of Computer Horizons Corp., **White Amber Inc.**, **CascadeWorks**, **Peopleclick**, **E lance Inc.**, **IQNavigator Inc.**, **Volt Information Sciences Inc.**, **Evolve Software Inc.**, **WorkforceLogic Inc.** and **The WorkCard Co.**

But the features and capabilities differ greatly. Some include HR functions that go beyond those needed for temporary work-

ers, and some support procurement of services besides contract staffing. Products also differ in the kinds of contract arrangements supported. The simplest are geared to time-based charges, but some also support fee- or deliverable-based billings.

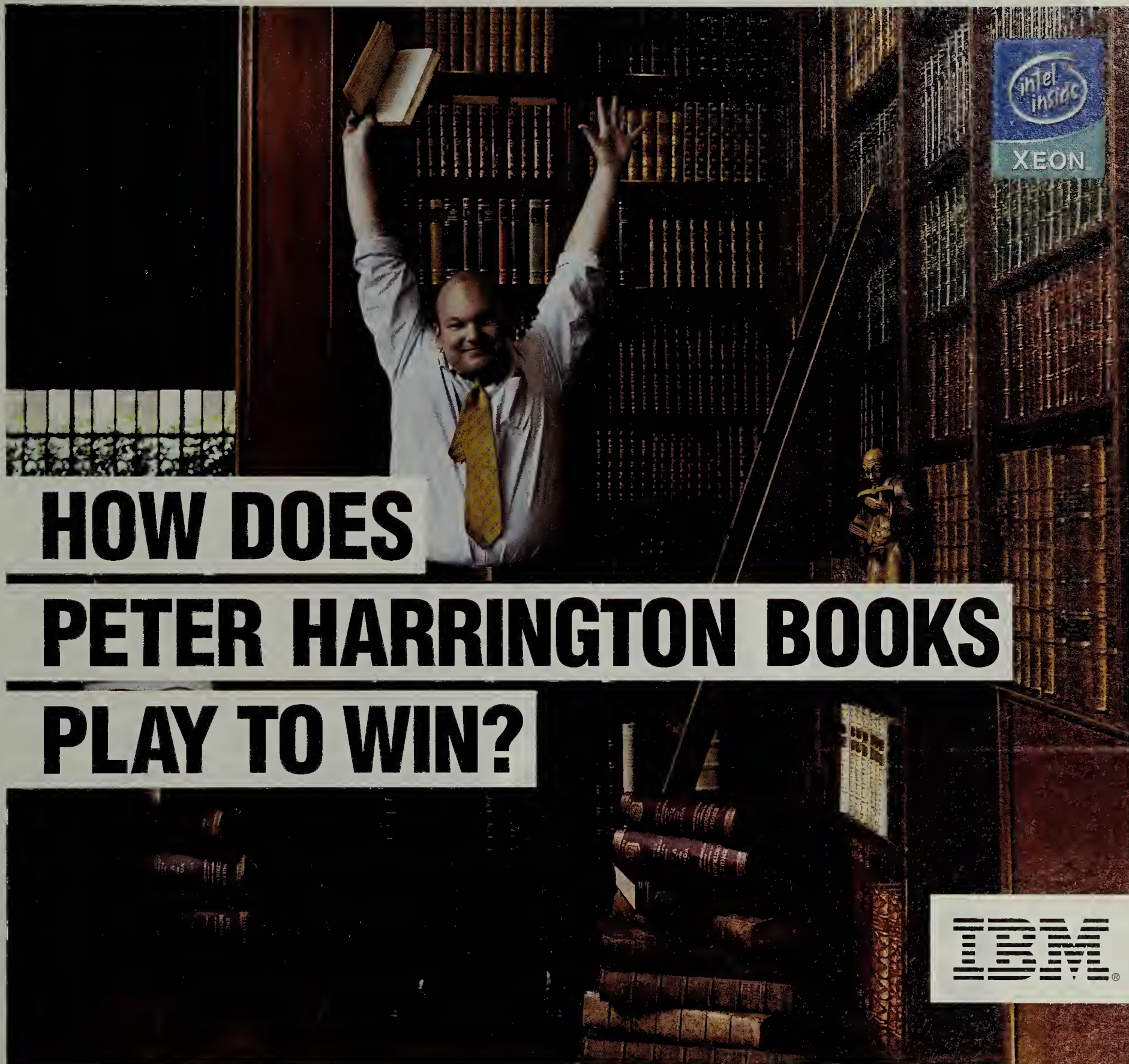
Among mainstream enterprise resource planning (ERP) vendors, **PeopleSoft** and **Oracle Corp.** offer software designed for contingent workers, but the tools lack many features of the specialized packages.

Ariba Inc., **Commerce One Inc.** and a few other ERP vendors have products for purchasing, but they're geared more to the

procurement of physical goods and are less suitable for managing contracts and workers over time. Ariba, however, has a reseller agreement with CascadeWorks for its Clarity software for services procurement.

According to Andrew Bartels, an analyst at **Giga Information Group Inc.**, the vendors with the most comprehensive offerings generally are the smaller, newer and potentially less stable ones. "At present, companies that want the most comprehensive solutions may have to accept some risk around vendor viability," he says.

— Gary H. Anthes



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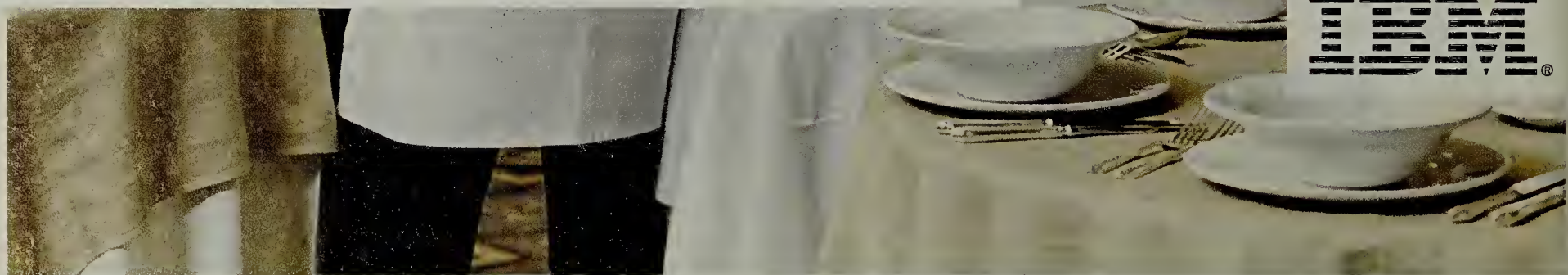
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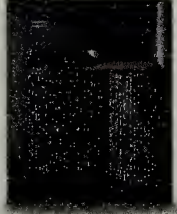

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THE DATA BUILDS THE PRODUCTS

Product life-cycle management tools can speed development times and cut costs, but deployments are by no means easy. By Jaikumar Vijayan

ITT FLUID TECHNOLOGY has been working on a project to support the global sharing of design, engineering, manufacturing and other product-related information among its various operations. The initiative, part of a wider effort to implement a "design anywhere, build anywhere" capability, should also let the manufacturer sell, service and integrate its parts everywhere, says global products and data manager Ron Watson.

The White Plains, N.Y.-based subsidiary of \$4.7 billion engineering conglomerate ITT Industries Inc. is one of many manufacturers turning to product life-cycle management (PLM) tools to improve manufacturing efficiency, product quality and time to market.

The systems let different groups exchange and collaborate on product-related images and data in real time, both internally and with outside suppliers and customers. To do this, the systems must gather and integrate data from sources ranging from design and engineering systems to manufacturing and field operations.

A wide variety of collaborative prod-

ucts fall under the PLM umbrella, including product data management technologies that integrate data from bill of material, computer-aided design (CAD), change management and enterprise resource planning (ERP) systems; configuration management systems that validate product configurations and link product specifications with engineering modules; and maintenance, repair and overhaul modules that link field services systems with change management and engineering.

While the benefits of linking such systems can be enormous, organizations that have launched PLM projects caution others to prepare for process

“PLM software can be buggy, it could require extensive programming to deliver, and it may not enable compliance with government requirements.

ERICA RUGULLIES, ANALYST,
GIGA INFORMATION GROUP INC.

and procedural changes, cultural issues and implementation challenges.

Because PLM systems are cross-functional in scope, installing one is often more difficult than companies anticipate, says Erica Rugullies, an analyst at Giga Information Group Inc. in Cambridge, Mass. The integration work involved in tying together disparate systems is substantial, she says.

"Companies can go about this in a few ways," Rugullies says. "They can look upon this as a huge project that requires extensive integration, software dollars and a number of players in different roles, or they can go after a specific business problem, such as finding a new way to effectively share digital data." But in either case, users should fully understand the issues involved in planning and deploying a PLM system, users and analysts say.

Upfront Issues

First and foremost, PLM products are still maturing, so the risk is that the software won't always live up to expectations. "PLM software can be buggy, it could require extensive programming to deliver the needed functionality, and it may not enable compliance with government requirements," Rugullies says. She recommends conducting a proof of concept before purchasing a PLM tool and budgeting time for troubleshooting and implementing fixes.

In addition, a full-fledged PLM project can be nearly as complex as rolling out an ERP system, so knowing upfront what value you want to get out of it is vital, says Marc Hendrickson, a Detroit Lakes, Minn.-based design documentation manager at Team Industries Inc., a manufacturer of powertrain and chassis components. Only then is it possible to know what information in a product's life cycle needs to be captured, how to manage it and what kind of workflow and decision-making processes need to be implemented. Team Industries uses Parametric Technology Corp.'s (PTC) Pro/Engineer CAD and Pro/Intralink data management software to tie data from its parts-development process to shop-floor data. In doing so, Hendrickson says he hopes to improve quality, parts reuse and time to market.

Setting the right scope is important, says Jim Heppleman, chief technology officer at PTC, a Waltham, Mass.-based vendor of PLM software. For instance, if the business goal is to reduce time to market, the project emphasis should be on enabling capabilities such as rapid digital prototyping

Continued on page 34

SCRUTINIZE BEFORE YOU BUY

GIVEN THE COMPLEXITY of the typical product life-cycle management (PLM) project, selecting the right product is key, say users and analysts.

Tim Bahr, manager of technical development at New Balance Athletic Shoe, says that when his company started investigating PLM, it had no idea where to begin. So Bahr and his associates visited eight companies that were implementing PLM technology and spent hours speaking with their peers about implementation issues and product options.

After narrowing the field to two, Bahr's team attended each vendor's introductory training session to get a feel for the technology before making a final selection.

This kind of extensive assessment is especially important given that a slew of vendors are rushing products to market. The more well-known players include PTC, Electronic Data Systems Corp., IBM, MatrixOne, Agile Software Corp. and Eigner. ERP vendors such as SAP AG are also extending their technologies with PLM features.

There is no "right" PLM product that fits the bill for all users, says Ron Watson, global products and data manager at ITT Fluid Technology. Rather, product choice should be dictated by your current environment and needs. "It's easy to make a wrong choice," he says.

In ITT's case, Watson ultimately decided to go with Parametric Technology Corp. (PTC) because his company was already using PTC's Pro/Engineer software for its design work. That choice avoided interoperability problems, he says.

In the end, a product that is configurable to your processes is ideal, adds Erica Rugullies, an analyst at Giga Information Group. Otherwise, users could end up spending a lot of time customizing their software to make it fit in their environments, she cautions.

— Jaikumar Vijayan

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THE DATA BUILDS THE PRODUCTS

Continued from page 32

and product bill-of-material management, Heppleman says. Similarly, if the goal is to increase product standardization, the focus might be on improving configuration management or on design reuse, he adds.

It also helps to have standard tools and interfaces when creating and sharing a single view of enterprise product data, says ITT's Watson. ITT is linking and integrating product design and engineering data across several manufacturing operations. To facilitate the process, ITT standardized on PTC's Pro/Engineer software for creating product design data and on Pro/

Intralink to share data between sites.

Using a common software platform reduces the complex integration and data translation issues that are otherwise involved, he says. Using standardized tools can also result in better design integrity and reuse and lead to better sourcing and material management processes, Watson adds.

Taking Small Bites

When planning a deployment, don't bite off more than you can chew, warns Hendrickson. "In a small organization where resources are limited, it might make the best sense to take a phased approach," he says.

His company adopted a three-phase approach to implementing PLM. In the first phase, he "nailed down" the company's parts-development process in order to determine what type of data he needed to capture and when. (Team Industries has identified 50 separate data points as a result of this exercise.)

Team Industries is now in the second phase: tying the data to information generated on the manufacturing floor. In the third phase, it will integrate that data into the company's manufacturing resource planning system.

Customizing packaged software to fit specific business needs can also be

a problem. New Balance Athletic Shoe Inc. in Boston is using PLM products from MatrixOne Inc. in Westford, Mass., to improve the effectiveness of its product development and procurement process and to make collaboration with international partners easier.

But New Balance has had to customize the software "a little more than we wanted to," says Bill Armelin, the shoe company's business systems project leader. For example, some procurement forms that the PLM system generated were different from what internal teams were used to, even though users input the same data. Similarly, what internal design teams refer to as a "specification sheet" appears as a bill of materials function in the PLM suite.

Be prepared to tweak your processes to avoid software customization, says Hendrickson. Team Industries changed its parts-numbering process and revisioning scheme to better use the capabilities of the PLM suite it's rolling out.

Getting users to adopt PLM systems can also be a challenge. "One of the things we noticed is that if you try to do too much right out of the box with a system like this, it is too much of a culture shock," says Tim Bahr, manager of technical development at New Balance.

Getting nonengineering people to

use PLM systems can be especially challenging, so it's important to spend time explaining and demonstrating the value a PLM system can bring to the different business units, adds Watson.


His group conducted road shows at several ITT manufacturing facilities to demonstrate the value of the PLM system. But even with those efforts, Watson says that "only a very small percentage of people . . . really believe they need this stuff."

Equally important is the need to get user feedback and include that in the requirements-gathering process, says Rugullies. Putting PLM training groups in the middle of the units that are most reluctant to adopt PLM may also pay off, she suggests.

Ultimately, getting PLM right is as much about setting the right expectations as it is about the implementation, says Frank Azzolino, president of Waltham, Mass.-based PLM vendor Eigner. "This is an industry that has historically overpromised but underdelivered," he says. ▀

EXTENDED INFLUENCE

Industry forces are driving PLM well beyond the engineering department:

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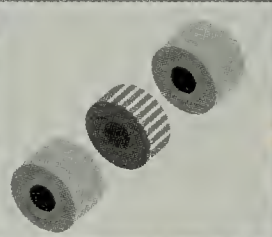
ITT'S SINGLE-POINT PRODUCT DATA VISION

ITT Fluid Technology uses product life-cycle management tools to create what it calls its "single source of product data vision." In this example, ITT is able to develop a product model by integrating data that exists in many different formats sourced from multiple groups across the enterprise.

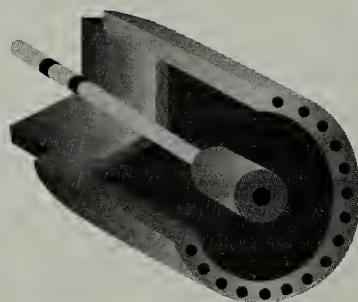
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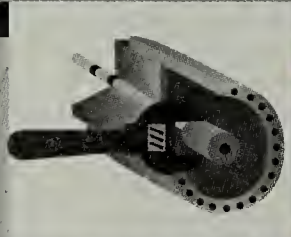
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THE POSSIBILITIES ARE INFINITE

Corporate Addition Means Reduction in IT Security

A merger blurs security objectives as culture, policies and systems begin to be assimilated. By Vince Tuesday

MY COMPANY recently merged with another financial services firm, and now the boundaries we worked so hard to build have to be torn down and rebuilt. We're under significant management pressure to quickly enable communication and information-sharing between the organizations. But we must also maintain the integrity of our IT security infrastructure, all the while merging two cultures with different IT security priorities.

We can't even decide where to build the walls, let alone how high they should be. We need to have all the normal working systems linked together.

The initial Phase 1 priority is e-mail, followed by file sharing. In Phase 2, we'll replace these linked systems with new companywide systems.

Given that our companies have different approaches to IT security, what should the newly formed organization incorporate as its new methods? And how much time and money should we spend protecting the links between systems if in Phase 2 we'll just throw away those links, along with the systems they connect?

Coordinated Response

To clarify my team's response, I spent a day with my other half, the acquiring company's head of security, whom I'll call Joe. He has no staff — his organization outsources everything to a large managed-services provider.

My team acts as the services company to our business

groups. Joe is a business-oriented customer of the outsourcer. My security group has an informal relationship with the business teams that are our customers, but we also have a clear responsibility to be flexible to their needs. Joe's firm has a formal service-level agreement (SLA) with the services company.

Unfortunately for Joe, security isn't a detailed part of the SLA, and he doesn't receive data or reports about security events. His costs are much lower, but he can't be sure of the

service he receives. This sounds bad to me. Then again, perhaps I'm a control freak who enjoys the depth of data I have at my fingertips, giving me the ability to track our company's security posture. But at least his SLA covers patch deployments. Some outsourcing contracts I've heard about don't.

Joe is new to security. His background is in commercial management and general IT team leading. I come from a technical security background,

so I have nearly 10 years of experience with the nuts and bolts.

Our reporting lines also differ. Joe has a nominally more senior position in his company, but with no budget and no staff, he feels somewhat ineffectual. He has requested that we help him apply some of the facets of our resolutely practical approach.

As the merger proceeds, we are organizing into three business units. My company is one of these, and my team will continue to protect that unit. I'd like to make a bid to bring security services in-house for the other business units, but now is not the time.

There's also the risk that the new, larger company will standardize on outsourced service for security. But they don't seem happy with the quality of the service they've been getting, so my team has a good opportunity to prove itself.

Redrawing the Borders

For now, we communicate between business units using a new set of e-mail addresses. We all still have our old e-mail addresses, however. When we use our new ones, the e-mails are routed to a central point and then fan out to the correct company server. That sounds fine, but it means that if I want to send a confidential e-mail to the person sitting next to me and I use their new address, it travels over the Internet to the other company, which holds the master list, and then back to our company. Not only is this slow, but it also exposes e-mails to the threat of interception in transit or while waiting on the Internet service provider's e-mail servers.

The fix is to directly connect our networks and link e-mail servers within the com-

pany, but that takes time. In the meantime we could deploy a virtual private network, but we would face extra costs and interconnection issues. Instead we have turned to the perfect feature within e-mail servers: transport layer security (TLS) and the Simple Mail Transport Protocol (SMTP).

These Internet e-mail standards are simple but secure extensions that provide for the integrity and confidentiality of e-mail messages in transit. SMTP and TLS support is included in all major e-mail transport products, including sendmail and Exim, both of which are freeware. With just a few lines of configuration changes, all of our e-mail transfers between e-mail servers in the organizations are protected. There's no required change to client software and no cost involved.

This can also work with other e-mail servers outside our company. If any other e-mail server on the Internet is configured to turn on TLS, then all the e-mails we send to them will also be protected.

So why doesn't everyone use this feature? Why not indeed! I recommend asking your e-mail team whether they have enabled it.

Next I'm going to work on linking our systems. I must balance the need to avoid compromising our protection against leaving our new insiders feeling as though they are untrusted. ▶

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum.

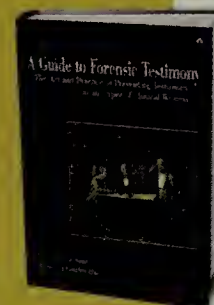
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SECURITY LOG

Security Bookshelf

A Guide to Forensic Testimony, by Fred Chris Smith and Rebecca Gurley Bace, Addison-Wesley Professional, 2002



This guide takes prospective security experts on a tour of all the key points for successful testimony. It covers the basics of law, offers tips about the best way to approach this kind of work, and includes reports by technical experts.

I found this book an enjoyable and informative read. Even if you don't need to prepare to give expert testimony, the skills taught in these pages can be helpful if you have to present information in any high-pressure environment, such as a meeting of your board of directors.

— Vince Tuesday

Aspelle VPN Upgrade

Aspelle Ltd. in Boston has announced availability of Version 3.0 of the Aspelle Everywhere Secure Sockets Layer virtual private network software. The software supports access to Web, Windows Terminal Services and Unix terminal sessions and can restrict access by user and location. Pricing starts at \$40,000.

NAI Launches Forensics Tool

InfiniStream, a forensic security appliance from the Sniffer Technologies unit of Network Associates Inc., lets network administrators capture and replay security breaches as they occur, identifying the source and cause of network security problems. The system can hold up to two and a half days worth of network traffic on a 5% loaded full-duplex gigabit network, according to NAI. Pricing for InfiniStream, which ships in the third quarter, starts at \$85,000.

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Tivoli GM Explains IBM Unit's Move to J2EE

BY SAMI LAIS

Robert LeBlanc was named general manager of IBM's Tivoli Software unit in June 2001. In the past 18 months, Tivoli has reduced its products from 150 to 50, and it's currently rewriting the architecture of its flagship Tivoli Enterprise framework in Java 2 Enterprise Edition (J2EE).

LeBlanc recently talked with Computerworld about Austin, Texas-based Tivoli's future.

What's happening with research and development? We have a major effort going on, rebuilding our architecture based on J2EE. The storage products are being built on J2EE now, and we'll be moving our more traditional products onto it over time. We haven't announced it yet, but we have an internal road map we're sharing with some customers. We want to be sure there won't be problems with it.

The biggest customer concern is going to be migration: Will they have to? Will they be able to get help? Will it cause problems for them? We're working to ensure there won't be problems; we have a customer architecture board to be sure we get their input.

Is Tivoli's change to a J2EE architecture being made in order to fit in better with IBM's Web services push? It's the right thing for Tivoli. We get a leading-edge technology and a more flexible architecture. It's Web-enabled and will improve performance. And [IBM's] WebSphere is in 50,000 shops. That's a strong presence, and it's been around for awhile, so it's pretty robust. And it means that we can take advantage of that rather than have an architecture built for Tivoli by Tivoli.

Where does Tivoli fit in IBM's storage strategy? What we're focused on is managing storage as a resource — monitor-

ing performance, allocation of resources across heterogeneous storage devices. We acquired TrelliSoft to automate

procedures and policy. For example, you may have a policy of no MP3 on corporate storage. You can automatically remove those files.

By knowing the details of your utilization, you can

maybe migrate onto cheaper off-line storage or eliminate some storage entirely. ▀

Lais is a Computerworld contributing writer. Contact her at sami_lais@computerworld.com.

Q&A

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BRIEFS

Appliance Boosts WAN Capacity

ITWorx Inc. in Burlington, Mass., has begun shipping NetCelera, a WAN capacity-expansion appliance that uses compression to provide up to a tenfold increase in network capacity. It operates on connections from 64K to 45M bit/sec. over private lines, frame relay, Asynchronous Transfer Mode or satellite links, and it works with virtual private networks. Application pricing starts at \$2,500 per site.

XML Development Tools Launched

Swingtide Inc. in Portsmouth, N.H., has released software and services designed to help developers with XML standards interoperability issues. QoB Assistant is a knowledge base and XML project planning tool that sells for \$14,995. Swingtide also offers three-day technology sessions that leverage its tool.

GIPS VoiceEngine Gets Upgrade

Global IP Sound AB has released GIPS VoiceEngine 1.1, a new version of a software plug-in with an application programming interface intended to improve sound in voice-over-IP applications. In addition, VoiceEngine 1.1 supports integration of encryption algorithms, includes a statistics generator for network management, and features improved port handling.

Messaging Suite Migrates to AIX

U.K.-based Gordano Ltd. has announced a version of its Global Messaging Suite for the AIX operating system. The new release includes e-mail, instant messaging, Short Messaging Service, shared calendars, antispam and antivirus capabilities and database-driven mass-mailing facilities. Pricing starts at \$835.

TOMMY PETERSON

Making a Federal Case Out of IT Security

WHEN THE BUSH ADMINISTRATION a few weeks ago raised the country's terrorism alert status to Code Orange and prescribed that citizens gather supplies for a potential emer-

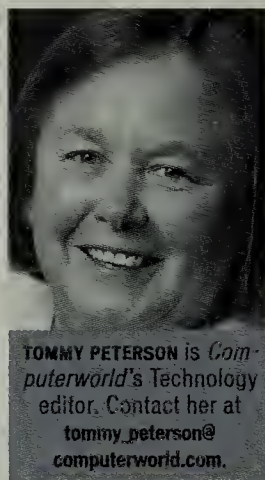
gency, most of us armed ourselves with jokes about plastic sheeting and duct tape rather than addressing the problem. For people who, like me, are old enough to be children of the Cold War, the warnings were a little too reminiscent of fallout shelters and "duck-and-cover" drills to be taken entirely seriously.

In my high school, those civil defense posters bore a final, hand-scrawled direction right after the instructions to get under your desk and put your head between your knees. It read: "And kiss your butt goodbye." Youthful sang-froid aside, it's not that we weren't jittery then; we were, just as we are now. But gallows humor seems to be the only sane response to earnest survival advice that's obviously inadequate for the threatened catastrophe.

Not so humorous but only a little more reassuring is the strategy for protecting cyber-based critical infrastructure that was recently released by the Department of Homeland Security (DHS).

The DHS report delineates the need for a "panoramic vantage point" of the Internet to create a "synoptic or holistic" view of cyberspace. The aim is to locate that vantage point within the sphere of the DHS, the better for the agency to protect us all.

The impulse is understandable, but I wouldn't count on it happening anytime soon. Corporate IT users are struggling mightily to get views of the circumscribed landscape of their own networks. And there's no shortage of vendors that claim to offer some variety of



TOMMY PETERSON is Computerworld's Technology editor. Contact her at tommy.peterson@computerworld.com.

end-to-end monitoring or management function to their customers, suggesting that the need, and therefore the market, for such capabilities is real. Why do I sense that it's going to be even tougher for a gargantuan government bureaucracy, with considerable but uncoordinated resources, to achieve a panoramic view of a global network of largely unrelated nodes?

To complicate matters further, Howard Schmidt, acting chairman of the President's Critical Infrastructure Protection Board, says the DHS will encourage the private sector to use diverse networking architectures and service providers as a way to limit the risk of a massive, debilitating cyberattack.

The size and complexity of the DHS's mission undermine confidence that it can keep the critical infrastructure secure — as does the suspicion that the agency won't be nimble enough to stop the inventive freelance crackers out there, let alone committed lunatics who are out to do more than mischief.

But the DHS could help by using its bully pulpit to persuade corporate managers to get more aggressive with their own IT security. The federal government has thus far been hesitant to force private companies to improve security, and it's clear that the carrot of tax breaks will be considered before the stick of regulation is raised.

What's hard to figure out, given the stakes, is why companies don't do more without any urging. It's not as though bolstering the security of their networks

would be an altruistic gesture — corporations lose billions of dollars each year because of security breaches.

And it's not a matter of waiting for technology that works or figuring out what to do. One frustrated IT manager I talked to recently, who asked not to be identified for obvious reasons, said he thinks he could make his company 80% to 90% more secure with the tools already in place if he had the authority to enforce policies that already exist.

Here are a few steps — you've heard them all before — that should be taken at every company now:

- Track vulnerabilities and install available patches promptly. Security vendor Symantec said recently that the number of reported vulnerabilities among its customers was up 81% in 2002 over the previous year.
- Insist on strong user authentication and access-control policies and technologies.
- Use up-to-date antivirus software.
- Install and maintain properly configured firewalls.
- Deploy intrusion-detection software that allows you to define the rules for alerts.
- Monitor activity logs carefully and consistently.
- Protect the data center by establishing programming policies to minimize those old bugaboos, buffer overflows and format string errors.

If companies took these obvious steps, they would make themselves and the economy more secure and provide building blocks for an overarching cybersecurity strategy. By themselves, these steps won't make our critical infrastructure safe, but they're a start. And getting them done would beat the heck out of stashing duct tape, plastic sheeting and a few cans of Dinty Moore in the basement. ▀

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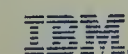
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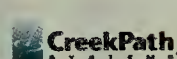
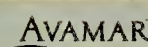
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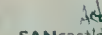
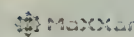
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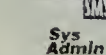
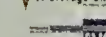
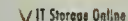
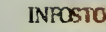
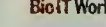
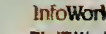
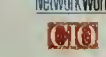
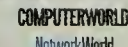
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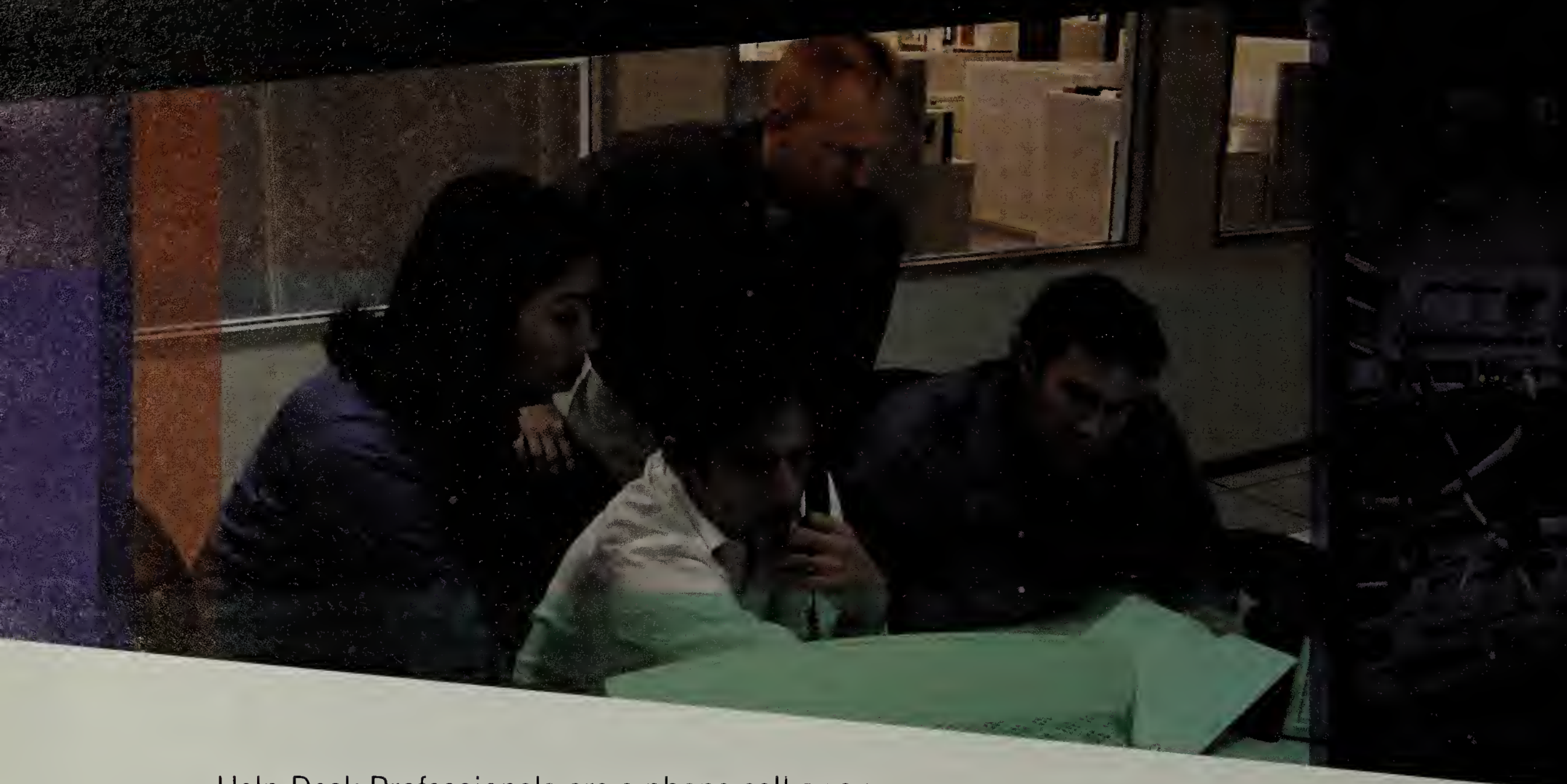


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Into Thin Errors

Cardinal Health Inc. moved its warehouse from a paper-based to an automated system, achieving 10% productivity gains while also reducing order entry errors. **Page 44**



Speeding Check-in

Delta Air Lines installed hundreds of self-service, check-in kiosks at airports across the country to reduce the amount of time travelers spend waiting in line. **Page 48**

QUOTE OF THE WEEK

“ We built a unique application development framework that comes as close to the developers' Holy Grail as possible.”

— Alan Boehme, former e-technology CIO at GE Power Systems. **Page 51**

EDITOR'S NOTE

USER BUY-IN. It's the factor that decides project success above all other measures. And it's something our Best in Class leaders know plenty about.

At Celanese Chemicals, a sales force “addicted to e-mail” didn't get excited about a new mobile platform until William L. Schmitt integrated their e-mail (page 47). At Office Depot, David Guzman tapped into users' competitiveness by using a new data warehouse to generate a report showing the sales performances of stores and employees. He knew the project had succeeded when he saw the report tacked up in an employee break room (page 46).

These projects had many success factors, including fresh ideas and solid business goals. But their *x* factor was the IT leaders' ability to get users excited about the technology.

For the second year, *Computerworld* honors such leaders and their companies with the Best in Class awards, culled from the projects of our 2003 Premier 100 IT Leaders.

Special thanks to our judges: Charlie Feld, founder, CEO and president, The Feld Group; Cathy Hotka, principal, Cathy Hotka & Associates; Priscilla Tate, executive director, Technology Managers Forum; Thornton A. May, futurist; and Bart Perkins, co-founder, Leverage Partners Inc.

We hope tips from these 10 award-winners will help you succeed with your own IT projects.

— Ellen Fanning

WILLIAM RIESER



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AUTOMATED WAREHOUSE REDUCES ORDER ERRORS

BY PATRICK THIBODEAU

CARDINAL HEALTH INC.'S warehouse automation project was big, but then, so is the company.

Dublin, Ohio-based Cardinal employs more than 50,000 people and has revenue of more than \$44 billion, and its catalogs have hundreds of thousands of products. The company supplies medical equipment to hospitals and doctors worldwide through the warehouses operated by its Medical Products and Services group.

Before the automation project began in 1997, customer order accuracy was estimated to be 99% — a solid figure. But that level of accuracy still meant that there could be as many as 10,000 errors per million shipments. The



Richard Gius (center) and his team at Cardinal Health aimed to make the Automated Inventory Management System a "living system" that wouldn't need a big upgrade in a decade or so.

JEFF SCORTINO

company's paper-based system didn't allow precise measures. "There weren't a lot of ways to measure defects, productivity," says Richard Gius, Cardinal's senior vice president for IT.

That changed with the Automated Inventory Management System (AIMS) project, part of a \$100 million redesign of systems throughout Cardinal. A key goal was flexibility.

"We wanted the architecture to be designed in a way that would allow us to continually upgrade the code," says Larry Linden, vice president of distribution and research and development at Cardinal. The plan was to create a "living system" that would help the company avoid having to do a massive up-

CARDINAL HEALTH INC.

Location: Dublin, Ohio
Web: www.cardinal.com
Project leader: Richard Gius
Business: Distributor of pharmaceuticals and other medical supplies and equipment
2002 sales: \$51.1 billion
Size of IT department: 500

grade in 10 years or so.

The distributed system, which cost \$2.4 million in software, used applica-

IT CONSOLIDATION HELPS SLASH OPERATION COSTS

BY THOMAS HOFFMAN

NOW THAT COST IS KING, the consolidation of servers and data centers — and even entire offices — has become de rigueur for many IT leaders.

Still, it's rare when an IT/business project comes in under budget and ahead of schedule. But that's just what happened at Corning Life Sciences, a division of Corning Inc., when it consolidated its European business operations between 1999 and 2000.

The company's IT organization led the effort to merge offices and associated inventory from Germany, France,



Howard Piggee Jr.:
Workers accepted
consolidation.

Italy and the U.K. into a central location in the Netherlands. The project was supposed to take 13 months and cost about \$1.5 million. Instead, it was completed in 10 months at 75% of the estimated cost, says Howard Piggee Jr., director of IT and CIO at Corning Life Sciences in Acton, Mass.

"Given the time and money spent, the project exceeded our expectations,"

says Piggee. But another pleasant surprise was how accepting the affected office workers were in handling the changes that occurred, Piggee says.

Compared with workers in the U.S., where telecommuting is standard practice, Europeans have been slower to shift to work-at-home environments. Demonstrating how successful projects require equal emphasis on people, processes and technology, Corning Life Sciences worked hard to communicate the importance of the consolidation effort to its staffers, most of whom now work from home, says Piggee.

tion systems developed with contractor Witron Integrated Logistics Corp. in Arlington Heights, Ill.

The system flexibility is achieved through a design that allows the addition of modules, such as a proof-of-delivery electronic signature system, to be added after installation. The system tracks products at every point, and even manages the "foot-steps" of warehouse employees to maximize their effort. With radio-connected handheld units and bar code scanners, managers can know the precise status of orders.

Productivity improved by 10%, and errors at some warehouses dropped down to a few hundred (in some cases, to none) for periods of several months. Cardinal uses AIMS in 57 warehouses and will continue to deploy it as new facilities are added.

Matt Bilodeau, an analyst at AMR Research Inc. in Boston, says the error-rate reduction achieved by Cardinal is impressive. Cardinal is using some robotic automation in a few warehouses. But Bilodeau and Steve Banker, an analyst at ARC Advisory Group Inc. in Dedham, Mass., warn that some companies that automate their warehouse systems may not necessarily get good returns on their investments.

Gius, Linden and Ed Michalski, Cardinal's IT director, are happy with what they've achieved, but they say some of the credit should go to the company's IT leaders of years past. The Medical Products and Services group that oversaw this project was once American Hospital Supply Corp., a forward-looking company that developed the precursors of the company's current e-commerce systems, says Gius. He credits the work of his predecessors for inspiring Cardinal's efforts. "In many respects, we are stewards of this legacy," he says. ▀

WEB SITE ADDS INVENTORY CONTROL AND FORECASTING

BY STEVE ALEXANDER

JOSEPH LACIK JR. doesn't try to measure the return on investment of his company's marketing Web site. The fact that Dallas-based Aviall Inc. was saved from financial disaster by a controversial multimillion-dollar IT project that included developing the Web site as one key element is all the return he needs to see.

That investment, in the words of Larry DeBoever, chief strategy officer at IT consulting firm Experio Solutions Corp. in Dallas, "turned Aviall from a catalog business into a full-scale logistics business" that hundreds of aviation parts manufacturers and airlines large and small depend on for ordering, inventory control and demand forecasting. He says the new approach ties Aviall more tightly to customers such as Rolls-Royce PLC.

"Aviall is now the logistics back end for the aviation firms," says DeBoever, whose company was retained to help with portions of Aviall's systems integration work. "And they did it even though the airline industry shrank over the last three years."

In early 2000, with quarterly sales dropping and Aviall on the ropes, "we invested \$30 million to \$40 million to build this infrastructure," says Lacik, vice president of information services at Aviall Services, a unit of Aviall. "Our competitors thought we were insane. Some

AVIALL INC.

Location: Dallas
Web: www.aviall.com
Project leader: Joseph Lacik Jr.
Business: Distributor of commercial and general aftermarket aviation parts
2002 sales: \$506.2 million
Size of IT department: 47

investors asked for my resignation."

The results of the project have been extremely successful. Publicly owned Aviall reported that in the quarter that ended in September, earnings from continuing operations rose 229% year-to-year to \$6.9 million, and net sales rose 74% to \$222 million. That represented a huge comeback from Aviall's problems, which sprang from a failed enterprise resource planning implementa-



Joseph Lacik Jr.: Aviall.com brought big benefits.

tion that resulted in inventory getting out of control. When Lacik joined the company in early 2000, "you couldn't properly order or ship things. My job was to bring back operational stability," he says. To do so, he implemented the CEO's vision of transforming Aviall into a provider of supply chain management services through the integration of a BroadVision Inc. online purchasing system, Siebel Systems Inc. sales force automation and order entry software, a Lawson Software financial system, a Catalyst Manufacturing Services inventory control and warehouse management system, and Xelus Inc. product allocation, inventory management

and purchasing forecasting software.

Aviall chose Sybase Inc. middleware because it was judged to be vendor-neutral. But even with planning, some of the systems integration was more difficult than expected. And the combined system had to deal with customized pricing charts for 17,000 customers who receive various types of discounts and with an inventory of 380,000 different aerospace parts.

The development of Aviall.com was one of the least expensive parts of the project, at a cost of about \$3 million, Lacik says. But it provides big benefits. Web ordering costs the company about 39 cents per order, compared with \$9 per transaction if an Aviall employee takes the order over the phone, Lacik says.

New supply chain functions are also possible, such as the ability for customers to transfer their orders from an Excel spreadsheet directly to the Web site. Customers can also receive price and availability information on aerospace parts in less than five seconds—a real-time feature that hadn't been available before the BroadVision system was installed, Lacik says.

The process also frees the company's sales force from routine order-taking and follow-up, thus allowing them to spend more time developing relationships with customers. What's more, the Web site helps Aviall build relationships with suppliers by providing them with customer ordering data that enables them to better match production with demand.

The Web site now generates \$60 million of the company's \$800 million in annual revenue, or 7.5%, up from less than 2% a year ago. "Over the next three to five years, it could become more than 30%," Lacik says. ▀

Alexander is a freelance writer in Edina, Minn. Contact him at Sorion99@yahoo.com.

CORNING LIFE SCIENCES

Location: Acton, Mass.
Web: www.corning.com
Project leader: Howard Piggee Jr.
Business: Manufactures products for scientific, semiconductor and environmental markets
2002 sales: \$6.3 billion
Size of IT department: 190

"The only thing we might have done differently was to accelerate the closing of one of our offices in the U.K.," where the deadline was extended to accommodate staffers who were accustomed to working out of an office, says Piggee.

"No matter how politicized or complex your environment is, consolidation efforts will typically drive the highest cost savings," says Jeremy Grigg, an analyst at Gartner Inc. in New York. For example, he notes that occupancy costs typically make up 11% of an organization's operating costs.

Prior to the consolidation effort,

Corning Life Sciences' offices in Europe each ran unique software applications across a potpourri of PCs, client/server systems and IBM AS/400 machines. Now the offices run on a single instance of PeopleSoft 7.53 running on Windows NT 4.0 on Windows 2000 clients housed in Corning Life Sciences' European data center in the U.K. The company now leans on a single multilingual customer service group in Holland as well as one warehouse there.

The IT group at Corning Life Sciences learned a few things along the way. "We discovered that we could do

this with a smaller, focused group of people," says Piggee. For instance, the European consolidation effort was orchestrated by four full-time workers and one part-timer, including two technical and process consultants.

Given its success, Corning Life Sciences plans to use a small-team approach in moving its North American business operations to a single version of PeopleSoft this spring, says Piggee. "We'll use this approach going forward as a way to reduce costs in getting IT projects accomplished." ▀

Best in Class continues, page 46

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Continued from page 45

SUPPLY CHAIN RE-ENGINEERING DRIVES DOWN COST OF POWER

BY MARC L. SONGINI

THE DESIRE to boost efficiency, standardize processes and cut costs in its supply chain led the Tennessee Valley Authority (TVA) to launch its largest IT project to date — and the return-on-investment results are already exceeding expectations.

The power generator's supply chain re-engineering project began in 1996, with the hope that cost reductions would mean cheaper power for end users. Since going live after a weeklong big-bang implementation in July 2001, TVA has reaped \$23.5 million in savings, putting it a year ahead of schedule in its plan to cut \$54 million in costs in five years. Central to the system are applications from Indus International



Tennessee Valley Authority supply chain system team members (left to right): Deborah Sandridge, Donnie Martin, Rebecca Lockaby and Diane J. Bunch.

Inc., an Atlanta-based enterprise asset management software vendor.

"From the sheer magnitude, it was the largest undertaking in the agency's history," said Diane J. Bunch, senior vice president of information systems at TVA, a nonprofit federal government corporation. The project required the agency to work closely with its customers to decide on the best implementation approach, which they eventually agreed should be a fast rollout. "This meant getting everything going at the same time," Bunch says.

The big-bang approach was "very scary," says Paul Lapointe, senior vice president of procurement at TVA. But what made it successful was the continual involvement of business experts

TENNESSEE VALLEY AUTHORITY

Location: Knoxville, Tenn.

Web: www.tva.gov

Project leader: Diane J. Bunch

Business: Largest government-owned U.S. power producer

2001 sales: \$6.9 billion

Size of IT department: 741

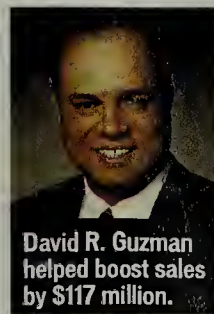
at each of TVA's locations, who took responsibility for the project's success. End users were also key. "We tried to leave no one out," Lapointe says.

In the process, TVA was able to elim-

DATA WAREHOUSE BOOSTS PROFITS BY EMPOWERING SALES FORCE

BY GARY H. ANTHERS

VETERAN IT LEADER David R. Guzman wants his management to say, "Ah, got it!" And executives at Office Depot Inc. definitely did get it when Guzman and a team of his colleagues, in the first application of a new data warehouse, boosted annual sales by \$117 million. Guzman, senior vice president for systems development at the time, says he was the "catalyst" for the project, which involved measuring sales clerks' and stores' success at cross-selling certain items, such as encouraging printer buyers to purchase a cable and paper.



David R. Guzman helped boost sales by \$117 million.

The concept was pretty simple, but measuring the results for each of 60,000 employees in more than 1,000 stores called for data warehouse technology from the Teradata division of NCR Corp., Guzman says. The warehouse spit out a key report that showed the percentage of cross-selling opportunities that were successful, broken out by employee and store.

The purpose of the report, in addition to providing measurements, was to tap into the natural competitiveness among Office Depot store personnel, Guzman says. "I knew it was successful when I went to a store in New York and another in Paducah, Ky., and found the . . . report on the wall of the employee break room."

"The visibility is what drove the stores' acceptance," says Gene Alvarez, an analyst at Meta Group Inc. in Stamford, Conn. "Sometimes data warehousing can be ignored by the stores unless it provides direct metrics on

inate 20 legacy homegrown and third-party applications, integrate 32 others and create an enterprisewide system that works in near real time. Instead of once-a-day updates generated from the nightly batch processes, users can now see TVA's inventory across all its locations anytime.

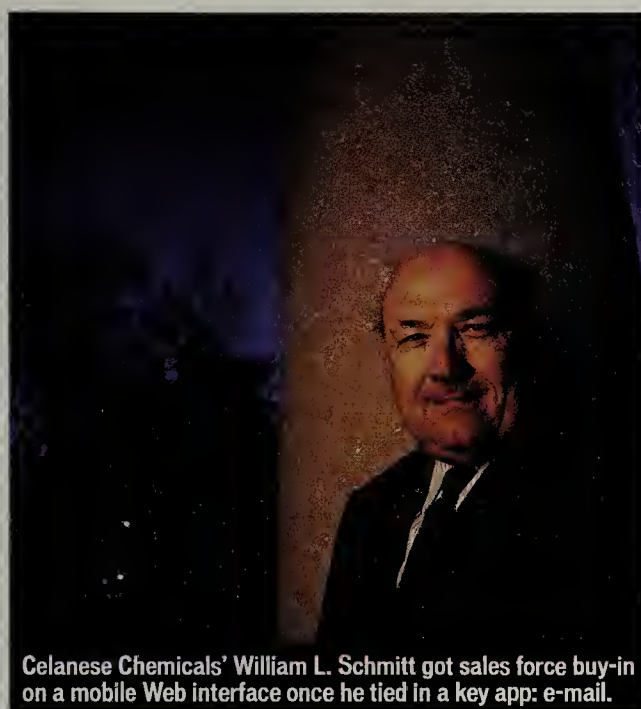
The new system enables TVA to make companywide volume purchases and to cut the price of maintaining multiple older systems. It will also allow the pruning of 89 positions through attrition. Additionally, TVA installed logistics software from Manugistics Inc. in Rockville, Md., that has centralized its freight operation and reduced mileage for its truck fleet.

Lapointe says there was extensive communication between the IT project staff and users throughout the process. The final rollout was kicked off during the week of July 4, when TVA's activity was at its lowest.

In the new architecture, TVA runs a centralized version of Indus' PassPort supply chain software, which connects to 17 copies of Indus' Enterprise Maintenance Planning and Control (EMPAC) asset management software. An integration module built around IBM's MQSeries middleware lets the two sets of applications communicate.

The project required loading 400,000 catalog items at each EMPAC site, and it engaged 5,000 end users, but "overall, from the operating side of the company, we felt very little pain," says Lapointe.

"User buy-in is a critical success factor," says Gartner Inc. analyst Karen Peterson. "That means going beyond the project team to every person who touches the applications being rolled out. Project teams that ignore this critical component will most likely fail." ▀



Celanese Chemicals' William L. Schmitt got sales force buy-in on a mobile Web interface once he tied in a key app: e-mail.

WIRELESS WEB BROWSER TIES SHIPPING DATA, E-MAIL

BY BOB BREWIN

NEW TECHNOLOGY, when deployed in the field, sometimes doesn't succeed until users find a simple but powerful reason to embrace it. That's what William L. Schmitt, director of business enablement at the Dallas-based Celanese Chemicals Ltd. unit of Celanese AG, discovered last year.

Schmitt developed a mobile Web interface for the company's Hewlett-Packard Co. Pocket PCs that would help its 25 U.S.-based field salespeople — each of whom is responsible for about \$100 million in

annual sales and is usually on the road — access shipping and billing data on back-end systems from SAP AG.

With the help of Clarkston Consulting in Durham, N.C., Schmitt developed an easy-to-use, text-based Web browser to access the SAP data. To provide "always-on" and relatively fast data access, Schmitt equipped the Pocket PCs with wireless data cards hooked up to Sprint PCS Group's nationwide Code Division Mul-

ti-ple Access 1XRTT data network, which offers average data speeds of 40K to 60K bit/sec. He also outfitted the browser with built-in links designed to make any road warrior's life more comfortable, including a hotel and restaurant guide and mapping software.

Despite the utility of the new applications on the Celanese platform, called Mobile Chem VIP, Schmitt says the sales force didn't completely buy in until he devised a way to hook the workers into the company's Microsoft Exchange mail system using e-mail synchronization software from Synchrologic Inc. in Alpharetta, Ga. The sales force "is addicted to e-mail," he says, and relishes the ability to check messages throughout the day on the Pocket PCs.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., says the Celanese project demonstrates that for many mobile workers, e-mail is an essential

CELANESE CHEMICALS LTD.

Location: Dallas

Web: www.celanesechemicals.us

Project leader: William L. Schmitt

Business: Producer of commodity chemical products; a subsidiary of Celanese AG

2002 sales: \$3 billion

Size of IT department: 75

tool. Companies looking to equip field workers with mobile devices should start with e-mail because "it's easy to do and enormously useful, and everyone knows how to do it," Reiter says.

But once a company has experienced the power of wireless e-mail, Reiter adds, it should move on to other applications that further empower mobile workers. Schmitt says that's exactly what Mobile Chem VIP does for the sales force. For example, it allows a salesperson to quickly locate for a customer a railroad tank car with a shipment of chemicals.

And access to billing information helps the sales force speed up payments, Schmitt says. Mobile Chem VIP allows them to call up and review disputed bills during a sales call and fix errors on the spot, cutting down the payment cycle time.

Twenty-five Celanese nonsales executives in the Dallas office now use Pocket PCs to access their e-mail while on the road, Schmitt says.

He says development costs for Mobile Chem VIP were relatively low — about \$30,000, plus \$1,100 each for the Pocket PCs. Schmitt says he can't put an exact payback figure on the project, but he says the system has already paid for itself "with just one incremental order for a tank car [of chemicals]." ▀

how the store is performing."

With any major new IT endeavor, it's important to quickly spot and pick some low-hanging fruit, Guzman says. "With success comes freedom," he says. "Data warehouses are kind of an amorphous concept to the business leader. But if you can say, 'Do you remember that project we did with cross-selling opportunities?' Then they can say, 'Ah, got it.'"

The cross-selling project paved the way for Guzman and his team to tackle more difficult projects in customer relationship management, he says.

"This is an excellent example of the

OFFICE DEPOT INC.

Location: Atlanta

Web: www.officedepot.com

Project leader: David R. Guzman

Business: Seller of office products, with 1,020 retail stores operating in 10 countries

2001 sales: \$11.2 billion

Size of IT department: 300

old keep-it-simple adage," Alvarez says. "It was very specific, very measurable and something that could be put in at a predictable cost."

Guzman is now CIO at Owens & Minor Inc., a Richmond, Va.-based medical supplies distributor, and he says he is applying the systems and team-building skills learned at Office Depot in his new job. Owens & Minor is implementing the next generation of its data warehouse technology, Wisdom, by linking supply chain information with clinical information.

Guzman gives his colleagues equal

credit for his accomplishments. At Office Depot, for example, he says the project couldn't have succeeded without leadership from the executive vice president for distribution, who brought discipline and focus; the marketing vice president, who provided sponsorship; and the executive vice president for stores, who enabled its execution.

Guzman says the Office Depot project taught him a key lesson in how to make an IT project successful: "Make it simple; make it fun; make it measurable; make it happen." ▀

Best in Class continues, page 48

BEST IN CLASS

COMPUTERWORLD
100
PREMIER
IT LEADERS 2003

Continued from page 47

SELF-SERVICE CHECK-IN KIOSKS GIVE TRAVELERS MORE CONTROL

BY LINDA ROSENCRANCE

FOR TRAVELERS, the best trips are fast and hassle-free, with limited time spent at the airport.

That's why Atlanta-based Delta Air Lines Inc. teamed up with its technology subsidiary, Delta Technology Inc., to deploy hundreds of self-service check-in kiosks at airports across the country, with a goal of speeding travelers to their destinations.

Mike Childress, senior vice president of development at Delta Technology and the project's leader, says there are now 449 kiosks installed at airports in 81 U.S. cities. The kiosks had been part of Delta's multiyear business plan, but when airports increased security in the wake of the Sept. 11 terrorist at-



Mike Childress, a senior vice president at Delta Technology, says Delta Air Lines' rollout of 449 kiosks showed the importance of having the application and business teams work together.

ANN STATES

tacks — and the amount of time customers spent waiting in line grew longer — the airline decided to accelerate the project. Delta acknowledges that it had been trailing some other carriers' kiosk initiatives before Sept. 11.

Rob Maruster, Delta Air Lines' director of airport strategy and service, says the kiosks help customers shave five to 15 minutes off the time they have to stand in line. Passengers can use the kiosks to check in for their flights, get boarding passes for originating or connecting flights, select or change seats, request to stand by for an upgrade, check baggage, change flights and initiate multiparty check-in.

This year, Delta plans to add more

DELTA TECHNOLOGY INC.

Location: Atlanta

Web: www.deltadt.com

Project leader: Mike Childress

Business: The technology subsidiary of Delta Air Lines

2002 sales (for Delta Air Lines):

\$13.3 billion

Size of IT department: 2,100

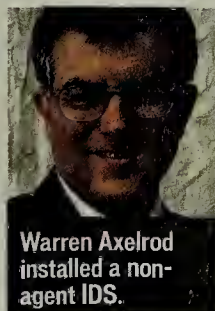
than 400 kiosks and enhance functionality to include international check-in and fee collection. With this change,

SECURITY SETUP IDENTIFIES ATTACKS WITH MINIMAL DRAG

BY STEVE ULFELDER

AS DIRECTOR of global information security at Pershing LLC, Warren Axelrod is acutely concerned with risk. Pershing acts as a securities-trading clearinghouse for more than 850 financial institutions; on any given trading day, it handles 5% of the New York Stock Exchange's transactions.

When Axelrod's team decided to add an intrusion-detection system (IDS) to its security portfolio last year, several familiar challenges cropped up. First, the investment would have to be justified to senior management. The IT



Warren Axelrod installed a non-agent IDS.

unit would then have to evaluate IDS products in a young, fast-changing field. And once a product was chosen, it would have to be installed in a pressure-packed, high-volume environment that left little room for error.

Axelrod succeeded on all fronts with a project that lasted eight months.

When studying the available IDS offerings, Pershing placed a high priority

on minimizing drag on network performance. That was a critical factor in sifting through the different types of systems. For example, network-based systems, usually composed of either a stand-alone appliance or software on a dedicated server, scale well and have little effect on performance "because they're just a bump on the wire," says Pete Lindstrom, a security analyst at Spire Security LLC in Malvern, Pa.

A host-based IDS is likely to use an agent — an active program on a host that monitors activity on a particular port. Internal testing at Pershing found

Delta will offer customers more than 800 kiosks in airports nationwide.

"From the business side, the kiosks are the cornerstone of a broader airport strategy to offer customers more control," Maruster says.

Since the project was launched in November 2001, the airline has spent \$5 million to \$7 million on customer-service initiatives, including the kiosks, he says. Maruster says the payback has been enormous, but he declines to give financial details.

Delta checked in approximately 1 million travelers via the kiosks in October and 1.4 million in January. "For 2002, our goal was to check in 5 million customers, but we actually checked in 7.4 million, and we're on track to check in 13 million to 14 million people this year," Maruster says.

Delta Technology purchased its kiosks from Kinetics USA in Lake Mary, Fla. Childress says an internal application-development team integrated the kiosk functionality with Delta's Digital Nervous System, the network that communicates with every part of the Delta organization.

"Last year we deployed over 300 kiosks in 81 cities," Childress says. "From start to finish, it took six months, and we were checking in half a million people per month. We wouldn't have been able to do it without the infrastructure."

Childress says he learned how important it is to have the application and business teams work together. "Having a team that knows what they want to achieve from a strategy and business perspective enables the technology team to drive a solution as soon as possible," he says.

"It's a good option for customers," says Lorraine Sileo, an analyst at PhocusWright Inc. in Sherman, Conn. "Passengers can wait in line if they want to, but now they don't have to." ▀

PALM ROLLOUT GETS STUDENTS ORGANIZED

BY MATT HAMBLIN

A TWO-YEAR ROLLOUT of 2,500 Palm Inc. handheld devices to students at the University of South Dakota in Vermillion has been a learning experience all around — for students, administrators and the IT staff.

The project was launched in the fall of 2001, with 1,500 freshmen and first-year medical and law students participating. The students were required to pay \$125, or about one-third of the Palm's cost, for either an m500 or m505 model. The program resumed last fall for the same classes, with the addition of more server software that allows students to quickly synchronize to course information via infrared ports at 45 points on campus.

CIO Roberta Ambur, who led the project, puts ongoing costs at more than \$100,000. That figure doesn't include the hardware, which was partly funded through a foundation grant. While Ambur says it's too early to judge the return on investment, the project's goals were to help retain students through graduation and aid them in becoming more organized and engaged. The university has won national attention in academic circles for the project.

"It certainly has raised our profile," says Don Dahlin, vice president of academic affairs.

But while the Palm-based applications have been valuable to first-year medical and law students, the rollout hasn't been a hit with many freshmen, who in their first year on

UNIVERSITY OF SOUTH DAKOTA

Location: Vermillion, S.D.

Web: www.usd.edu

Project leader: Roberta Ambur

Business: Founded in 1862

by the Dakota Territorial Legislature, USD is the state's oldest university. It offers more than 100 academic programs in its eight schools and colleges.

Size of IT department: 85

campus are taxed enough with finding the quickest way to class, university officials say. Many see a handheld as an added burden.

Dahlin concedes that the school may have rolled out the program "a little too boldly," especially to freshmen. But he adds, "It is sometimes the job of an academic institution to do some bold things."



Roberta Ambur rolled out 2,500 Palm devices.

"We're all somewhat skeptical still about the overall value of the program," adds Ambur. She and others have been disappointed by the lack of off-the-shelf academic programs that can be loaded onto the Palm devices, even though the handheld maker and analysts say that there are many tools available related to academia.

Ambur and other school officials want to budget for an on-campus programmer to write software that would expand the devices' use well beyond their function as personal organizers.

One area of programming that has encouraging possibilities has been de-

veloped by Doug Peterson, an assistant professor of psychology. He has used freeware called QuizApp to enable students to quiz themselves on topics that will appear on upcoming Psychology 101 tests.

Peterson says that he has noted a small increase in test achievement by students who have studied using QuizApp but that it's too soon to know whether overall learning is significantly improved through use of the devices. "I was overly optimistic [about] how quickly freshmen students would buy in," he says. "It scared half of them, and others said it wasn't worth their time."

In addition to hiring a programmer, Dahlin says, he wants the university to institute some simple applications for use in required freshman classes to "make the students more dependent on the devices."

One student, Aaron Roseland, has used his Palm for checking course syllabuses, taking notes, keeping appointments and getting alarms one week before a big test. He says he expects the rollout to improve with the addition of more course-specific programs, and he blames Midwestern skepticism as one reason for the slow adoption by freshmen.

Administrators say the medical students have had a better experience because there is more handheld use in the health care field in general, and more widely used software, such as a drug interaction guide.

A number of schools nationwide have instituted handheld rollouts, and the most successful deployments relate course material directly to a program that runs on the device, says Todd Kort, an analyst at Gartner Inc. in Stamford, Conn. "If you have a computer science course and the professor has developed courseware directly using the PDA, then you see some real value," he says. ▀

that systems using agents increased latency, so the firm narrowed its candidates to nonagent IDSs. "That was a logical way for us to start organizing our choices," says Michael Gergel, a Pershing IT vice president.

Axelrod won't say which IDS was selected or confirm that the system is host-based. That's a sound approach to security, says Lindstrom, because "each system has its own vulnerabilities, and enterprises don't want to advertise where their weak points may be."

Pershing does say that it uses Network Security Manager 4.0 from Intel-

PERSHING LLC

Location: Jersey City, N.J.

Web: www.pershing.com

Project leader: Warren Axelrod

Business: Provides investment-related products to more than 850 clients worldwide

2002 customer assets:

\$400 billion

Size of IT department: 1,700

litactics Inc. in Bethesda, Md., as an übermonitor of its IDS. One of a new class of tools often referred to as security event managers, the product "receives intrusion data and alerts from our network intrusion-detection system components running on the network and system logs directly from the host servers, and interprets the messages based on a previously entered set of rules," Axelrod says. "[It] looks for patterns, which it displays graphically, making for easier and quicker determination of problems."

When asked how many man-hours the

new IDS saves Pershing, Axelrod pauses and then says, "It's not a matter of saving people; it's a matter of better using the people you have. This system puts together patterns rapidly in a way the average human mind can't and shows it in a graphical way." That's invaluable in today's intrusion-detection environment, where the toughest challenge isn't sensing data, but making sense of it. ▀

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@yahoo.com.

Best in Class continues, page 51



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GE POWER SYSTEMS

Location: Schenectady, N.Y.
Web: www.gepower.com
Project leader: Alan Boehme
Business: Designs, manufactures, installs and maintains gas, nuclear and steam-driven power-generation plants
2002 sales: \$20.2 billion
Size of IT department: 1,200

“

We built a unique application development framework that comes as close to the developers' Holy Grail as possible.

ALAN BOEHME, FORMER E-TECHNOLOGY CIO, GE POWER SYSTEMS



Continued from page 49

APPLICATION FRAMEWORK ALLOWS EASY PORTAL ACCESS

BY JAIKUMAR VIJAYAN

GE POWER SYSTEMS' Parts Edge portal site is an online resource that lets GE Power's customers purchase parts from the company while giving them a single interface to its many business units and partners.

One of the biggest challenges the Schenectady, N.Y.-based company faced when building the portal was finding a way to share data across disparate legacy systems, enterprise resource planning (ERP) software and Web-based applications.

The company, a subsidiary of General Electric Co., "had systems that had been built in silos that were not communicating" with one another, recalls Alan Boehme, former e-technology CIO at GE Power and now CIO at Best Software Inc.

"The objective was to provide a seamless method for the selection of parts and service, with information being able to come into the system through multiple means, such as Web browsers, EDI [electronic data interchange], XML exchanges or an ERP system," he says.

To address the issue, GE Power decided to build Parts Edge on a Web-services-enabled application framework based on Java 2 Enterprise Edition (J2EE). The framework lets GE developers use a slew of Java exten-

sions and XML to promote interoperability and integration among the various third-party applications that form the core of Parts Edge.

Using the J2EE framework also ensured that Parts Edge could be accessed through various means, including business-to-business connections, EDI and browser interfaces. And it allowed GE Power to more easily tie Parts Edge back to the company's core Oracle ERP system as well as other legacy applications.

Parts Edge is the largest of 60 or so applications that are supported by GE's J2EE-based application development framework, which is known internally as Casper. Developed to prevent vendor lock-in and preserve existing legacy investments, Casper has delivered several benefits for GE developers, Boehme says.

Among them are increased portability of applications across multiple operating systems, application servers and hardware; reusable business, application and legacy system business logic; a common presentation layer for disparate systems; and reduced costs and cycle times for development and upgrades. For instance, an application that normally would have taken 11 developers 14 weeks to finish was completed by 12 developers in six weeks using an updated version of Casper.

Reuse of source code and of components such as Java classes and Enterprise JavaBeans has also reduced development time and effort. For instance, by adding only 691 lines of extra code, GE Power was able to spin out a new application with functionality similar to that of another application that had taken 72 man-weeks to complete, Boehme says.

When putting together such a framework, don't underestimate the time it takes to do the functional analysis, Boehme says. "You need to spend the right amount of time to analyze the business processes and the interfaces to do the technical design," he says.

Application architectures built around the concepts of service, design and component reuse, such as GE Power's, can yield benefits that extend for several years, says Daryl Plummer, an analyst at Gartner Inc.

"But the technology and culture that go with it are both difficult to deal with," Plummer cautions. "It generally takes more planning, more discipline and more technology skill" to implement such service-oriented application frameworks. ▀

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Programmer Analyst: Develops and modifies programs to facilitate the internet and extranet web based transfer of, and access to, organizational business data in the insurance and health care industries. Must have M.S. in Computer Science and one year's experience in job offered. Send resume, to Paradigm Technology Solutions, Inc. 7332 International Drive, Orlando, FL 32819, attn: K Shah.

Prog/Analysts to analyze, design, test datawarehousing/datamart, software applns and ETL using tools like Informatica, Cognos, Oracle, MS SQL Server, CICS, DB2, HTML, Java, C++ on UNIX, Windows OS; gather, document reqs from user community; test, troubleshoot project appln code accor. to system objectives. Require: BS or foreign equiv. with Conc. in CS / Engg. (any branch)/related field & 2 yrs exp in IT. Competitive salary. F/T position. Travel Required. Resume to HR, SmartSoft International, Inc., 4898, South Old Peachtree Rd, Norcross, GA 30071

Oracle Application Developer needed w/exp to implement & customize Oracle Applications (ERP) including Oracle HRMS, Financials, Accounts Payables, Accounts Receivables. Development & conversion of Unix based Paybill Application using APPGEN to Oracle HRMS. Integrate w/the ERP implementation using Oracle, PL/SQL & Developer 2000. Send resume to: Vedio North America LLC, 60 Harvard Mills Square, Wakefield, MA 01880.

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Developer. Will develop, test, implement and support business systems of low to medium complexity on multiple platforms including client server, mid-range and mainframe for marketing applications. Will act as system administrator for Corema application used to deliver specific offers to customers at the Point of Sale. Will utilize COBOL, SQL and Easytrieve Plus languages. Will work on multiple assignments simultaneously and perform trouble shooting, problem solving, and analysis. Will interact with Project Managers, Systems Analysts, Developers, Vendors, DBA's and various Technical Support personnel as required to support new and existing applications. Minimum requirements (education, training, experience): Bachelor's Degree (or for equiv) in Computer Science or closely related field and two years progressive experience in job offered or related occupation as software developer or programmer/analyst. Also, must possess (1) demonstrated expertise working on large main frame platforms; (2) demonstrated knowledge of operating; and (3) network systems such as UNIX or Windows NT and relational database management systems such as DB2 and Access. Offered salary is \$61,516/yeer (40hrs/wk). Std Company Benefits. Send resumes in duplicate to: Labor Exchange Office, Case #200115043, 19 Stanford Street, 1st fl., Boston, MA 02114.

Intellisys Technology is a fast growing Chicago based IT consulting group with clients all over the USA in leading edge areas such as eCommerce, ERP, Automated Testing and Client Server MultiTier Systems. Intellisys is looking for Programmer Analysts, Software Developers and Project Managers with experience in one or more of the following skills:

C++, C, VC++, Java/JSP/Servlets, ASP, ActiveX, COM, DCOM, CGI, Servlets, CORBA, Perl VJ++ HTML, DHTML, XML JAVA APPLET'S COLD FUSION, HTTP SEGUE/RADVIEW TOOLS Large Scale System Design/Architecture Testing Experience

All jobs require a minimum of a Bachelors Degree in Computer Science or related field or its equivalent in education and/or experience.

Project Managers require a Masters in Business Administration or its equivalent in education and/or experience.

If you are interested in our company, please mail, fax or e-mail your resume including reference number CW0103 to: INTELLISYS TECHNOLOGY, LLC, 801 N. Cass Ave., Westmont, IL 60559; fax (630) 455-1333 e-mail: recruit@7hillsys.com

Lead Oracle/Internet Developer sought by pharmaceutical R&D Co. in Princeton, NJ. Candidate must have a Master's degree or equiv in Comp Sci & at least 5 yrs of exp in IT, specifically applications development. The following skills are required: 1+ years in pharmaceutical industry; exp w/business development environment and Strategic Intelligence function; min. 3 yrs. exp in web development using Java/JSP/Servlets/Oracle (versions 7-9i, Oracle Application Server 9iAS); Oracle DBA certification; exp w/ Documentum, WDK 4.2.4; Documentum Web Development Kit; exp w/ data modeling using ERWIN & Visio; exp in full life cycle software development of IT projects & applications including design, development, testing and delivery. Ability to lead a small team; manage vendor responsibilities on projects; possess excellent verbal/written communication skills in order to provide technical options to business users. Send resume to: Strategic Staffing, BMS, M/S E14-12, Route 206 & Provinceline Road, Princeton, NJ 08540 Job Code: NS-788.

A position is available for a Senior Business Analyst, Consulting with an Atlanta-based technology solutions company. The company architects end designs next generation software for point-of-sale and Internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants. The Senior Business Analyst, Consulting will be primarily responsible for providing consulting services to analyze business processes and define best practices for the implementation of complex software applications for the company's clients.

Candidates for this position should possess a Bachelor's degree in a computer field whose degree program must include analysis and redesign of business processes; analyzing, designing, and managing database systems; creating user guides; and training other users. Job requires demonstrated knowledge of operating systems and software applications including Windows, Macintosh, UNIX, MS Project, and MS Visio; and C++, Visual Basic, and SQL.

Apply by mail to:

Christie LoCurto
Radiant Systems, Inc.
3925 Brookside Parkway
Alpharetta, Georgia 30022

Director ERP Applications

Western New York based manufacturing company seeks top quality candidate. MBA required. Proven ERP major application implementation experience with (Oracle, SAP, JD Edwards or Peoplesoft). Strong manufacturing systems experience essential. Experience building fault tolerant systems. Solid knowledge of Internet technologies and strengths in system development methodologies. Ideal candidate must be a leader with excellent communication/interpersonal skills. Outstanding environment, benefits and compensation with this highly respected organization. Respond to Personnel Resource, Inc. via email: prinorth@perresource.com

Manager, Client Facing Systems (Washington, DC) - Consult with clients to plan, design, implement & deploy extranet and web-based technology solutions. Lead multi-vendor integration, tool selection and implementation. Negotiate vendor contract terms. Manage complex extranet development/integration projects, provide end user training, and contribute to group and departmental planning, budgeting & technology architecture design processes. Utilize exp. in developing & implementing intranets/extranets in a professional services organization, including exp. in Cold Fusion, SQL Server, JavaScript, Visual Basic, VBA, MS Exchange & SMTP. Requires M.S. in Comp. Sci./Engineering/MIS or related plus 1 yr. related exp. Please send resume & cover letter to Akin Gump Strauss Hauer & Feld LLP at washstaffrecruiting@akingump.com or fax to (202) 452-4807. EOE.

TechNation Software Consulting, Inc. a software consulting company with its main place of business at Sioux Falls, SD has multiple positions for Software Professionals.

Sr. Software Engineers: BS in CS, or equivalent with more than 5 years of recent programming experience or MS in CS with more than 3 years of such experience. Duties entail programming, gathering user requirements and customization of software in either of a) Database Systems which involves database design, data modeling working in both front end as well as backend applications on Unix and Windows platforms. Or in b) systems side programming in Unix, C, C++ which involves product development, working on telecom protocols or development of device drivers.

Both positions require knowledge of allied Internet technologies like Java, JSP, XML, J2EE and ASP.

Unix Systems administrators: BS in Computer Sciences or equivalent with atleast five years of experience in an enterprise environment. (i.e. more than 500 users) Duties include extensive use of Network Implementation and Administration, System Integration, Backup and recovery, shell scripting and System Securities. Experience in Management of Enterprise Network Storage devices (SAN or NAS), HP and Solaris Servers, switches, HUBs and in Veritas NetBackup systems.

TechNation provides onsite consulting services to clients across the United States and hence a key requirement for all positions is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Madhukar Gangadi, 300 N. Dakota Ave. Suite #505-B, Sioux Falls, SD 57104 or email to madhukar@tncinc.com. Fax: 530-733-2775

Vt. Based consulting co. with clients located on the East Coast has multiple openings for IT professionals. Looking for the following skill sets:

- Oracle and Progress developers
- client server developers C, C++, VB, VC++
- J2EE
- web based developers Java, HTML, ASP
- Forte
- Technical writers
- multiple OS Windows, NT and UNIX
- multiple Rdbms Oracle, SQL Server, Informix
- Legacy systems exp. for conversion projects
- Auto and manual testers

Mid-level and Sr. positions available. All positions require Bachelors degrees. Salary competitive. Re-location for short term assignments with costs covered. Send cover letter and resume with salary requirement to jobs@itechus.com.

SW Eng'rs: Rsrch, dsgr, devlp, test Oracle DBA/Oracle Applic'n DBA w/ High Availa'y Servers, & Parallel Servers on Unix/Win; dsgr, devlp interfaces w/ above systems in Developer 2000, PowerBuilder, VB, C/C++, SQL. 40h/w, 8-5, BS in eng'g or business rel'ted field, 1-yr wk exp w/ Oracle DBA & VB, Resume to S. V. Mohan, Frontier Solutions Inc. at 10150 Belle Rive Blvd., #2108, Jacksonville, FL 32256 or at hr@frontiersolutions-inc.com

INFORMATION SECURITY

CHIEF INFORMATION SYSTEMS SECURITY OFFICER

The Congressional Research Service (CRS) seeks a senior Information Technology Specialist to serve as its Chief Information Systems Security Officer. The incumbent will lead the implementation of all CRS security programs and will ensure that those programs are integrated with the information security programs of the Library of Congress and the United States Congress.

The specialist will develop and ensure compliance with information security policies, standards, and guidelines, and provide regular IT security training to CRS managers and staff. The specialist will also be responsible for evaluating and monitoring the work of IT security vendors and contractors, and providing expert analysis and advice on a wide range of issues and problems related to information systems security.

Position is being offered at the GS-15 level (\$94,914-\$123,388).

To apply online (preferred), visit www.loc.gov/crsinfo or call 202/707-5627 to request an applicant job kit. Please refer to vacancy #030022 in all correspondence. Applications must be received by March 5, 2003. As the public policy research arm of the U.S. Congress, CRS is fully committed to workforce diversity.



TechNation Software Consulting, Inc. a software consulting company with its main place of business at Sioux Falls, SD has a position for a software professional whose duties will involve gathering requirements, doing business analysis and proposing solutions for IT needs of health-care and pharmaceutical industry. The individual will build and lead a team to develop solutions for software dealing with clinical trials for the pharmaceutical industry.

Job Requirements: Bachelors degree with a concentration in computer science or equivalent with additional coursework in Medicine or pharmacology. Should have knowledge of clinical trials along with a minimum of 3 years experience in software programming, Analysis and three years experience in business development.

TechNation provides onsite consulting services to clients across the United States and hence a key requirement for this position is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Navdeep Petyal, 300 N. Dakota Ave. Suite #505B, Sioux Falls, SD 57104 or email Navi@tncinc.com

Associate Director, Relationship Management. Columbus, GA. Direct the work unit that performs daily servicing, system/product development, requirements definition, system options, conversions, start-ups, and de-conversion activities on the International Services Department ("ISD") Cardholder platform for clients in 17 countries using 9 currencies. Provide client service for the total Cardholder processing on a complete computer platform and recognize and manage cultural differences in business styles and government requirements for 17 countries.

Competitive Salary. Must have three (3) years of managerial experience within credit card and banking industry using TS1 International Platform systems and written & oral fluency in Spanish to work with clients in 17 countries. Must have legal authority to work in the U.S. Please send resume demonstrating all minimum requirements to: Total Systems Services, Inc., Attn: Pam Toffinski, 1000 - 5th Ave., Columbus, GA 31901.

Positions are available for Product Consultants in Atlanta and Boston and a Systems Support Engineer in Atlanta with an e-business technology company. The company provides solutions that enable corporations and software providers to leverage emerging technologies to more effectively compete in the global market. Product Consultants are responsible for planning, developing, and implementing custom software applications at customer sites. They gather and analyze requirements of end users and prepare feasibility analysis including requirements.

Candidates for the Product Consultant positions should possess a Bachelor's degree in a Computer field and at least two years' experience in software design and development implementing middleware technology or web enabling and database technologies, including XHTML and XML or JAVA, and demonstrated knowledge of AS400 technology. Must have ability to travel 100% of time.

The Systems Support Engineer is responsible for providing software expertise in developing and producing software systems for three-tier Middleware development and production packages that reside on UNIX and NT servers.

Candidates for the Systems Support Engineer position should possess a Bachelor's degree in Computer Science or a related field and at least one year's experience in systems support for middleware technology using JAVA. Apply by mail with resume to: Natalie Gow, c/o Jacada Inc., 400 Perimeter Center Terrace, Suite 195, Atlanta, Georgia 30346.

LLEORNA Enterprises, a provider of software consulting services, seeks:

Senior Systems Integration Engineer, BS or equivalent in Computer Sci, Engineering or related + 6 yrs exp in SW engng, programming or related. Also 2 yrs exp in Windows & Unix systems admin; knowledge/backgrnd in: RDBMS; CGI; and Perl, C++ or Java; backgrnd in power utilities/energy industry. Mail resume to: 2243 Shannan Dr., South San Francisco, CA 94080.

IT Professionals

Manager

Responsible for tax and revenue system development including application design, development and implementation. Responsible for the return processing subsystem of a large-scale customized integrated tax system that performs processing, audit, collection and discovery functionalities. Lead Joint Application Design (JAD) sessions with groups of users and compile system requirements for the return processing area. Responsible for every deliverable of the full life cycle from inception to completion. Work with users to design and implement the requirements that incorporate configurability and high performance. Responsible for consolidating return edits and performing cross tax types edits. Supervise every aspect of the design, development and testing of the applications and manage functional and technical staff. Responsibilities include integrating multiple tax types and departments such as processing, audit, and collection as well as conducting design and code reviews and presenting each deliverable to the users. Utilize HTML, Websphere, Java, DB2, JavaScript, Java, and Relational Database.

WAGE: \$90,000/year

REQUIREMENTS:

Bachelor's degree in Computer Science, Math, Business Administration, Engineering (any type), or Information Systems + 5 years exp. in the job offered or 5 years exp. as a Designer & Developer, Team Leader, Manager, or Senior Consultant. Related experience must include at least 3 years of experience in tax and revenue system development including application design, development and implementation. Must have knowledge of (1) integrating multiple tax types and departments such as processing, audit, and collection. (2) at least 1 year experience in: HTML, Websphere, Java, DB2, JavaScript, JAD, Relational Database.

Please send your resume, referencing Job Order Number **WEB 304448** to the: PA Career Link/Job Service, Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370-1324 EOE.

Consultant Westminster, CO

Who we are GE Power Systems is the world's leading supplier of power systems equipment and services, servicing a global market with annual sales of over \$10 billion. A thriving technology driven organization, our innovative spirit and progressive challenges have made GE Power Systems a hotbed for exceptional opportunities. As we continue to move forward, we have a number of excellent opportunities available for engineering professionals.

Who we seek The Consultant gathers user requirements and performs system and application design based on the analysis of those requirements to improve the client's existing GIS system; confers with the client to analyze current operational procedures, identify problems and provide geographical information system technical support; develops custom GIS applications using Magik or other relevant application development languages; develops application using industry-standard programming languages such as C++, Java, or others as dictated by specific project requirements; develops or assists in the development of interfaces to external systems such as database management systems.

The Consultant must possess a bachelor's degree in Computer Science, GIS, Engineering or other related field and a minimum of 3 years experience as part of a complex information systems project; familiarity with GIS and/or object-oriented design and programming education/experience; good problem solving and analytical skills; and excellent oral and written communication skills and the ability to discuss complex technology in a clear and concise manner.

How to apply We offer a competitive salary, an outstanding benefits package and the professional advantages of an environment that supports your development and recognizes your achievements. To apply, please send your resume, referencing code GEPS/295779/AN030, to: opportunities@gecareers.com. We are an Equal Opportunity Employer.



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Cressanda Solutions Inc. has openings for Programmer Analysts for locations in Pennsylvania and elsewhere with at least one year of experience in all of the following skills: SQL Server, Oracle, Visual Studio, Crystal Reports. Positions require a Bachelor's degree in Comp. Sci. or Engg. Must have legal authority to work in the US. Excellent pay and benefits. Mail resume with proof of work status to: hrus@cressanda.com

SR. SYSTEMS ANALYST - Design, analysis, coding, testing and maintenance of software for HR benefits and payroll applications in support of manufacturing environment using Oracle Version 11i, Oracle HR, Payroll and Advanced benefits package, Oracle forms and reports, SQL, and PL/SQL. Oracle database, application, security administration and database tuning. B.S. in Computer Science, Computer Engineering, or Information Systems plus two years of experience in systems analysis and design, Oracle 11i and HR, Oracle Forms and Reports, SQL, PL/SQL, salaried payrolls, benefits, Oracle database, application, security administration and database tuning. 40 hr./wk. \$63,840/yr. Must have permanent work authorization to be employed in the U.S. Send resume to: Ms. Deborah L. Nisley, Ormet Primary Aluminum Corporation, P.O. Box 176, State Route 7, Hannibal, OH 43931.

Programmer/Analyst to analyze, design, develop, test, implement and maintain web based enterprise applications using JAVA, JSP, SERVLET, EJB, JDBC, HTML, XML, SQL, IBM WebSphere, BEA, WebLogic, VisualAge for Java, JBuilder, ORACLE, DB2 on Windows NT/2000 and Sun Solaris and AIX Unix. Require: BS Degree in Computer Science, an Engineering discipline, or a closely related field with more than 2 years of progressively responsible experience in the Job offered or in the related occupation of Software Engineer. Extensive travel on assignments to various client sites within the US is required. Competitive Salary offered. Apply by resume to: Ravi Kandimalla, President, EVEREST COMPUTERS INC., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: JobCP

SENIOR SOFTWARE ENGINEER to design, develop, test and implement application software for the telecommunication industry using object oriented programming, Java, CORBA, Orbix 2000, XML, EJB, Weblogic Application Server and Shell Scripting under SUN Solaris operating system in a distributed environment; Mentor junior programmers and software engineers. Require: M.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, Principal, ASAP Staffing LLC, 3885 Holcomb Bridge Rd., Norcross, GA 30092; Attn: Job VR.

PROGRAMMER/ANALYST to analyze, design, test, implement and support computer software programs for internet/intranet based information solutions using C, C++, Visual C++, HTML, XML, Java, Java Script, Perl, MPI, OpenGL, PVM, CORBA and GNU Development Tools under Windows and UNIX operating systems. Require: B.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered; A M.S. with a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience will be accepted in lieu of the B.S. and two years of experience. Competitive salary offered. Send resume to: Kristina Ulveling, Macquarium, Inc., 1800 Peachtree St., NW, Suite 250, Atlanta, GA 30309; Attn: Job GS.

INFOTECH CONSULTING, INC.

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A multi-million dollar consulting firm seeks well-qualified technical professionals for analysis, design, development, implementation and maintenance of software applications in one or more of the following:

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 - Microsoft Technologies
 - a) DNA, COM/DCOM/COM+/MS
 - b) DotNET, C#, VB.NET, ADO.NET, XML, assemblies, Remoting
 - c) XML with MS SQL Server
 - d) Version Control, VSS
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- VB, ASP
 - XML (DOM, SAX) DotNET, Java & C++ Parser
 - OOPS, CORBA, ORDBMS, Design Patterns, MOM Concepts
 - Object and Database Modeling - CASE Tools (ERWIN, Designer, Cool:GEN) UML (Enterprise Architect, Rational Rose)
 - SAP, Peoplesoft ERP, ABAP, Oracle Applications (Financials)
 - ORACLE database Developer, Designer, Actuate Web Reporting
 - UNISYS Mapper/COBOL, PowerBuilder
 - IBM Mainframe, MQSeries and Related Technologies
 - DBA- Oracle, DB2, SQL server

Computer Programmers should have bachelor's degree (or its functional equivalent) in Computer Science/quantitative disciplines & 2+ yrs relevant experience. Software Engineers should have master's degree (or its functional equivalent) in Computer Science/quantitative disciplines & 2+ yrs relevant experience or bachelor's degree (or its functional equivalent) in Computer Science/quantitative disciplines & 5+ yrs relevant experience. DBAs should have bachelor's or master's degrees (or functional equivalents) and 2+ years relevant experience. Candidates must be willing to travel & relocate. Send resume to: Recruitment CWW, Infotech Consulting, Inc., 4750 Delbrook Rd., Ste. 201, Mechanicsburg, PA 17050; Fax: 717-731-9857; Email: hsingh@infotechpa.com. Visit our website at <http://www.infotechpa.com>.

NEWS MEDIA MANAGER - WABC

Eyewitness News has an immediate opening for a News Media Manager. Responsibilities include: managing media ingest, output and traffic flow for multiple newscasts including digital playback, supervising news editors, news editing, and managing digital servers and archives.

The successful candidate will have a minimum of 3 years television news editing experience, and multiple years experience working in a TV newsroom exercising editorial judgment. Must be proficient in non-linear editing techniques, computer literate, comfortable working with Microsoft Office and Windows NT, as well as experience with one or more newsroom systems such as AP ENPS.

This individual must be highly organized and used to working under tight deadlines while working on multiple, overlapping projects. The News Media Manager will work closely with News Producers and Management to ensure the timely and accurate production of newscasts, special reports and special segments. Prior supervisory experience preferred.

Please send resume to: Ted Holtzclaw, News Operations Manager, WABC-TV, 7 Lincoln Square 4th Fl., New York, NY 10023. No calls please. We are an Equal Opportunity Employer.

SENIOR SOFTWARE ENGINEER to lead a team in the design, development, testing, implementation and support of application software in a client/server environment using C, C++, Java, Oracle, Weblogic, Visio, TOAD, JMS, EJB, CORBA and Orbix Web ORBs under UNIX and Windows operating systems. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, Principal, ASAP Staffing LLC, 3885 Holcomb Bridge Rd., Norcross, GA 30092; Attn: Job AB.

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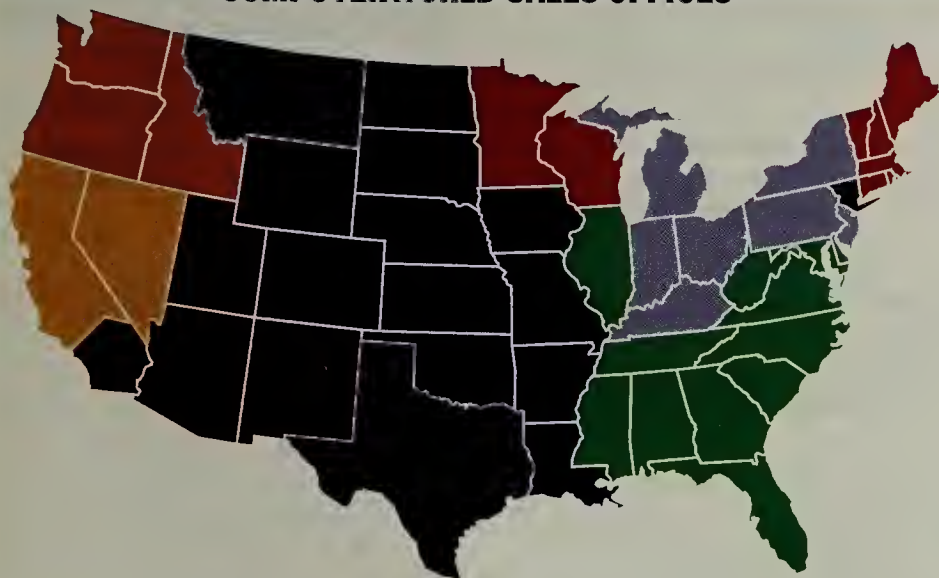
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AGILE SOFTWARE CORP. 32
ALCATEL 16
ALTAVISTA CO. 8
ALTOVA INC. 8
AMEREN CORP. 24
AMERICAN ARBITRATION ASSOCIATION 7
AMERICAN EXPRESS CO. 6,10
AMHERST TECHNOLOGIES LLC. 7
AMR RESEARCH INC. 18,44
ANNTAYLOR STORES CORP. 1
APPLE COMPUTER INC. 57
ARC ADVISORY GROUP INC. 44
ARIBA INC. 26
ASPELLE LTD. 36
AT&T WIRELESS SERVICES INC. 20
AVIALL INC. 24,45
AVNET HALL-MARK 10
BANK OF AMERICA CORP. 18
BEA SYSTEMS INC. 14
BEST SOFTWARE INC. 51
BROADVISION INC. 45
BUSINESS INTERNET GROUP OF SAN FRANCISCO 8
CALIFORNIA DEPARTMENT OF GENERAL SERVICES 18
CAROINAL HEALTH INC. 44
CARLSON COMPANIES INC. 27
CASCADEWORKS INC. 27,28
CATALYST MANUFACTURING SERVICES 45
CATHY HOTKA & ASSOCIATES 43
CLANESSE AG 47
CLANESSE CHEMICALS LTD. 24,43,47
CENTER FOR INTERNET SECURITY 14
CENTERS FOR MEDICARE & MEDICAID SERVICES 1
CINGULAR WIRELESS 20
CISCO SYSTEMS INC. 25
CITRIX SYSTEM INC. 1
CLARKSTON CONSULTING 47
CLASSROOM INC. 24
CNF INC. 10
COMMERCE ONE INC. 28
COMPUTER HORIZONS CORP. 28
CONNECTIX CORP. 1,67
CO-OPERATORS LIFE INSURANCE CO. 6
CORNING INC. 44
CORNING LIFE SCIENCES 24,44
CREATIVE IT MARKETING 12
DATA PROCESSORS INTERNATIONAL INC. 6
DAVIS WRIGHT TREMAINE LLP 1
DELTA AIR LINES INC. 48
OELTA TECHNOLOGY INC. 48
DOSKOCIL MANUFACTURING CO. 7
EIGNER 32
ELANCE INC. 28
ELECTRONIC DATA SYSTEMS CORP. 32
EMBEDDED LINUX CONSORTIUM 8
EMPRESAS POLAR 1
ENTERPRISE APPLICATIONS CONSULTING 7
EVOLVE SOFTWARE INC. 28
EXPERIO SOLUTIONS CORP. 45
EXPERTCITY INC. 1
FARPOINT GROUP 20
FBI 14
FIELDGLASS INC. 27
G. PIERCE WOOD MEMORIAL HOSPITAL 12
GARTNER INC. 6,44,46,49,51,57
GE POWER SYSTEMS 51
GENERAL ELECTRIC CO. 51
GIGA INFORMATION GROUP INC. 1,28,32
GLOBAL IP SOUND AB 40
GOLDBERG, KOHN, BELL, BLACK, ROSENBLUM & MORITZ LTD. 14

GORDANO LTD. 40
GREEN MOUNTAIN COFFEE ROASTERS INC. 1
HEALTH FIRST INC. 27
HEWLETT-PACKARD CO. 47
HITACHI LTD. 10
HON INDUSTRIES INC. 12
HONEYWELL INTERNATIONAL INC. 18
IBM 6,7,8,10,16,25,32,39,46
IBM CANADA LTD. 6
IDC 10
IMPERIAL TECHNOLOGY INC. 8
INCOUS INTERNATIONAL INC. 46
INTAACT CORP. 10
INTEL CORP. 57
INTELLITACTICS INC. 48
INTERNATIONAL TELESYSTEMS ASSOCIATION & COUNCIL 1
IQNAVIGATOR INC. 28
ITRON INC. 18
ITT FLUID TECHNOLOGY 32
ITT INDUSTRIES INC. 32
ITWORX INC. 40
J.O. EDWARDS & CO. 7,12
J.R. SIMPLOT CO. 1
JUPITER RESEARCH 8
KAISER PERMANENTE HEALTH PLAN INC. 1
KETERA TECHNOLOGIES INC. 10
KINETIC WORKPLACE INC. 48
KINETICS USA 1
KRONOS INC. 27
LAWSON SOFTWARE 45
LENOVO TREE INC. 1
LEVINGER CO. 8
LEVERAGE PARTNERS INC. 43
LM ERICSSON TELEPHONE CO. 20
LUCENT TECHNOLOGIES INC. 16
MANUGISTICS INC. 46
MASTERCARD INTERNATIONAL INC. 6
MATRIXONE INC. 32
MATRESS GIGANT CORP. 1
MERRILL LYNCH & CO. 12,57
META GROUP INC. 7,12,18,46
MICROSOFT CORP. 1,6,8,12,14,16,18,25,47,57,58

MORRISON & FOERSTER LLP 6
NCR CORP. 8,46
NETWORK ASSOCIATES INC. 16,36
NEW BALANCE ATHLETIC SHOE INC. 32
NEXT GENERATION SECURITY SOFTWARE LTD. 8
NEXTTEL COMMUNICATIONS INC. 20
NITEO PARTNERS INC. 14
NOKIA CORP. 20
NUCLEUS RESEARCH INC. 18
OFFICE DEPOT INC. 24,43,46
ORACLE CORP. 8,28,51
ORGANIZATION FOR THE ADVANCEMENT OF STRUCTURED INFORMATION STANDARDS 14
OUTERBAY TECHNOLOGIES INC. 8
OVERTURE SERVICES INC. 8
OWENS & MINOR INC. 46
PACIFIC GAS & ELECTRIC CO. 7
PALM INC. 6,49
PARAMETRIC TECHNOLOGY CORP. 32
PEOPLECLICK INC. 27,28
PEOPLESOFT INC. 8,27,44
PERSHING LLC 48
PHOCUSWRIGHT INC. 48
PRESIDENT'S CRITICAL INFRASTRUCTURE PROTECTION BOARD 40
PRICEWATERHOUSECOOPERS 1
PROVIDENCE HEALTH PLAN 1
RATIONAL SOFTWARE CORP. 6
RED HAT INC. 8
ROLLS-ROYCE PLC 45
ROOT LEARNING INC. 24
SANS INSTITUTE 14
SAP AG 6,8,32,47
SHARE INC. 10
SIEBEL SYSTEMS INC. 8,8,45
SIEMENS AG 20
SILICON ENERGY CORP. 18
SNIFFER TECHNOLOGIES 36
SPIRE SECURITY LLC 48
SPL WORLDGROUP 7
SPRAGUE ENERGY CORP. 7
SPRINT PCS GROUP 20,47
STAPLES INC. 16

STRATEGIC DISTRIBUTION INC. 18
SUN MICROSYSTEMS INC. 6,8,14
SWINGTIDE INC. 40
SYBASE INC. 45
SYMANTEC CORP. 40
SYNCHROLOGIC INC. 47
TAMIASU, SMITH, HORN AND BRAUN ACCOUNTANCY CORP. 14
TEA LEAF TECHNOLOGY INC. 8
TEAM INDUSTRIES INC. 32
TECHNOLOGY MANAGERS FORUM 43
TELLABS INC. 18
THE TRANE CO. 18
TEXAS INSTRUMENTS INC. 27
THE FELD GROUP 43
THE FLEXITALLIC GROUP INC. 7
THE TRANE CO. 18
THE WORKCARO CO. 28
TIVOLI SOFTWARE GROUP 39
TRANSMARINE NAVIGATION CORP. 10
TRUSECURE CORP. 1
U.S. ARMY 58
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES 1
U.S. DEPARTMENT OF HOMELAND SECURITY 14,40
UNIVERSITY OF MIAMI 18
UNIVERSITY OF SOUTH DAKOTA 49
VALASSIS COMMUNICATIONS INC. 12
VERIZON WIRELESS 20,27
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY 14
VISA INTERNATIONAL INC. 6
VMWARE INC. 157
VOLT INFORMATION SCIENCES INC. 28
WEBGEN SYSTEMS INC. 18
WEBMETHODS INC. 8
WHITE AMBER INC. 28
WIRELESS INTERNET & MOBILE COMPUTING 47
WITRON INTEGRATED LOGISTICS CORP. 44
WORKFORCELOGIC INC. 28
XELUS INC. 45
XEROX CORP. 6
ZAPTHINK LLC 14

ADVERTISER'S INDEX

Brio 33
www.brio.com
Cisco 22-23
www.cisco.com
Computer Associates 4
www.ca.com
EMC 13
www.emc.com
Fujitsu 9
www.fujitsu.com
Fujitsu Technology Solutions 35
www.fst.fujitsu.com
IBM eServer 29,30-31
www.ibm.com
IBM Tivoli 50,51
www.ibm.com
InterSystems Caché 26
www.intersystems.com
Mobile & Wireless World 38
www.computerworld.com/mww
New Moon Systems 15
www.newmoon.com
Nortel Networks 60
www.nortelnetworks.com
Remedy 1
a BMC Software company 20,39
www.remedy.com
Robert Half Consulting 42
www.rhc.com
SAP 19
www.sap.com
SAS 11
www.sas.com
SeeBeyond 21
www.seebeyond.com
Storage Networking World 41
www.computerworld.com/snw
StorageTek 37
www.storagetek.com
Sun Microsystems 2-3
www.sun.com
Symantec 59
www.symantec.com
Veritas 17*
www.veritas.com
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Continued from page 1

Virtualization

to wait until next January to get off of NT.

"If they came out tomorrow with it, I'd buy it and evaluate it right away, because it solves my problem of trying to at least consolidate testing environments," Pane said.

Diane Greene, CEO of VMware, acknowledged that Microsoft had approached her company and that there were some discussions, but they didn't come to an agreement. She said VMware already has thousands of customers, adding that Microsoft's acquisition of Connectix "just amplifies our focus on delivering and continuing with our innovation and quality and providing full choice for our customers."

"It's a pretty large market," Greene said.

Tony Adams, a technology analyst at J.R. Simplot Co. in Boise, Idaho, said his company pared 30 physical servers to

five boxes running VMware's GSX software during the past eight months. That move helped the company reduce the time needed to purchase, configure and deploy a server from two weeks to a couple of hours, according to Adams.

The company was so happy with the consolidation project that it's now planning to deploy 15 to 20 physical servers running VMware software for new applications.

Adams has seen Connectix, but he said Microsoft

"would really have to

do a much better job to win us over," since VMware has been a great fit. Plus, Adams said, he runs VMware's GSX software on Linux — something he wouldn't be able to do with the new Microsoft product.

Alejandro Bombaci, CIO at Empresas Polar, a consumer goods manufacturer and distributor in Caracas, Venezuela, said he would prefer to see hardware makers or third parties provide the virtual machine functionality, "so there will be more independence on

the support for each operating system under the partitioning software."

Despite those sentiments, some analysts said they anticipate that many users will be more comfortable going with Microsoft's virtual machine software.

"You really want one vendor to deal with when you're dealing with operating systems," said Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group Inc. Plus, Enderle said, he expects Microsoft to eventually build the virtual machine software into its operating system "to the point where they're almost giving the stuff away."

Hebert said that over time, the product might be included with the operating system. Virtualization software has become an increasingly popular consideration for Microsoft users coping with the problem of Windows server sprawl, since the software can help them reduce hardware expenses and operating costs.

"We were hearing from customers that getting a support-

Shopping List

Microsoft last week acquired three software products from Connectix, in addition to its engineering and support teams.

Virtual Server: Native Windows-based server application that enables users to run a broad range of operating systems in virtual machines — including Windows, Linux, Unix and OS/2 — concurrently on a single physical Intel server. Product is currently in beta-testing phase.

Virtual PC for Windows: Client software that allows users to run multiple PC-based operating systems — including Linux, NetWare, OS/2, Solaris and Windows — and applications simultaneously on a single workstation.

Virtual PC for Mac: Client software that lets Macintoshes run Windows applications, access PC networks and share files with PC-based users. Product provides functionality and compatibility of a Pentium PC through software emulation of the standard Intel chip set and other hardware components.

able virtual machine solution from Microsoft would be an attractive thing," Hebert said.

NT Server users often run a single application on each of their Windows servers, either because software vendors require it or because they worry that problems with or changes to an application will cause others to crash.

Hebert noted that as a result, much of the hardware running Windows NT Server 4.0 has gone underutilized. Yet

because the hardware is nearing the end of depreciation schedules, some customers want to replace it, he said.

Rather than moving Windows NT applications onto new hardware that will be even more severely underutilized, the user can move it to new, faster hardware running the Virtual Server product, Hebert said. That would let several Windows NT servers be consolidated on a single box.

And there's an added benefit for Microsoft. Hebert noted that the Virtual Server software requires its own underlying operating system, and Microsoft hopes customers will choose to run the Virtual Server software on Windows Server 2003, due in April.

But not every company will be rushing to do Windows server consolidation. Jim Prevot, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., said companies pay a premium for the larger servers. Plus, he said he would rather have less functionality off-line if a server crashes or needs to be taken down for an application upgrade.

Rick Stiegler, chief technology officer at Lending Tree Inc. in Charlotte, N.C., said his company's applications perform better on two-way servers than larger four-CPU boxes, so consolidation isn't in his company's plans. ■

Acquisition Gives Microsoft New Client Apps, Employees

Microsoft last week acquired two established client products from privately held Connectix, in addition to the beta version of the San Mateo, Calif.-based company's Virtual Server software.

The Virtual PC for Windows software lets users run multiple PC-based operating systems and applications simultaneously on a single workstation.

Jim Hebert, general manager of Microsoft's Windows server product management group, said a typical scenario for Virtual PC for Windows might involve a user who has upgraded to Windows XP yet wants to run an older application built for Windows 95 or 98. With the Virtual PC software, the user could run the older application and the older underlying

operating system on the new PC, Hebert said.

Connectix's Virtual PC for Mac, through software emulation of the Intel chip set and other hardware components, enables Apple Computer Inc.'s Macintosh computers to run Windows applications, access PC networks and share files with PC users.

Hebert said that in addition to the three Connectix software products, Microsoft also acquired the company's engineering and support teams. He added that Microsoft has no plans to change any of the functionality of the Connectix products. But he did note that the Virtual Server software might eventually be built into the Windows server operating system and that product names

might change at some point.

Microsoft will complete final development, testing and certification of Virtual Server and provide support for existing testers of the product. The Connectix beta is closed to new applicants, but Microsoft plans to introduce a Virtual Server preview release on April 15 via its Web site.

Tom Bittman, an analyst at Gartner Inc. in Stamford, Conn., said the Connectix Virtual Server software drove the Microsoft acquisition. But, he said, although Microsoft sees partitioning as a helpful tool for users doing migrations, he thinks Microsoft sees workload management as more important strategically.

Microsoft will ship its Windows Systems Resource Manager

(WSRM), which allows users to allocate processing power and memory for applications that run on the same copy of Windows, as a separate CD with Windows Server 2003.

"WSRM is really at the center of their consolidation strategy," Bittman said.

Although analysts said the Connectix server software was the driver for the Microsoft acquisition, the client piece may gain some corporate traction. Diane Greene, CEO of rival VMware, said Merrill Lynch & Co. has more than 20,000 seats of her company's workstation product so that users can run two different flavors of Windows for application compatibility.

— Carol Sliwa

FRANK HAYES ■ FRANKLY SPEAKING

Which Microsoft?

DAVE STUTZ LIKES Microsoft Windows — he thinks it “makes a hell of a good client.” But Stutz also believes that if Windows, Office and other Microsoft products remain PC-centric, they’re in trouble. “The biggest opportunity is no longer the client,” he writes. “Networked software will eventually eclipse client-only software. . . . If the PC is all that the future holds, then growth prospects are bleak.”

That’s what Stutz told his fellow Microsoft employees in the memo he sent out just before he left the company on Feb. 7 (see story, page 12). But it’s not what he said that should worry us.

It’s what he didn’t quite say.

Stutz is a true believer. He spent more than a decade at Microsoft, most recently as the guy in charge of Microsoft’s “shared source” projects. Before that he spent time as the architect for Visual Basic and as a member of the Microsoft technical strategy brain trust.

So when he says Microsoft “must survive and prosper by learning from the open source software movement and by borrowing from and improving its techniques,” that’s pretty much guaranteed to grab attention — and it has. (You can read an edited version of Stutz’s parting shot on his Web site at www.synthesist.net.)

What won’t get as much attention are the things he edges around. Stutz doesn’t come right out and talk about the state of Microsoft. He puts his concerns in the form of predictions and warnings, which make them sound innocuous enough. After all, they haven’t actually happened yet, right?

But we know from experience that an insider’s predictions in this industry often aren’t predictions — they’re thinly veiled descriptions of things that are already going on.

So when Stutz suggests that the next few years could “have the side-effect of changing Microsoft into a place where creative managers and accountants, rather than visionaries, will call the shots,” is he predicting — or describing?

When he says that “digging in against open source commoditization won’t work” and argues that “any move towards cutting off alternatives by limiting interoperability or integration options would be fraught with danger,” is he warning against possible Microsoft strate-

gies or just pointing out the way things are?

When he warns that “Microsoft cannot prosper during the open source wave as an island, with a defense built out of litigation and proprietary protocols,” is he sketching a possible tomorrow or spelling out today’s reality?

These are words that should worry corporate IT people. The Microsoft that Stutz is not-quite-describing isn’t a software vendor that can help us succeed. This is Fortress Microsoft, hunkered down with a siege mentality and at war not just with competitors but also with what customers need.

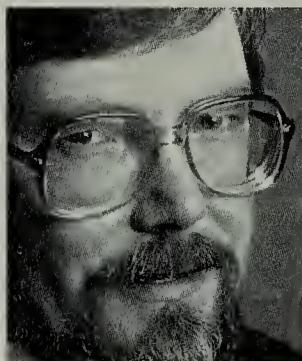
Never mind whether Microsoft “embraces the diversity of the open source approach,” as Stutz suggests it should. A Microsoft that has shifted into fortress mode won’t help us solve our IT and business problems. A Microsoft that’s focused on limiting our integration options will make it harder, not easier, to keep things working together.

A Microsoft armoring itself with litigation and proprietary protocols is worse than useless to us — it would actually be hostile to corporate IT’s ability to do its job.

That would be an awful waste, both of Microsoft’s investment in technology and of our investment in Microsoft.

But if this really is the Microsoft we’re facing going forward, then it’s time to make some hard decisions about how we’ll deal with a vendor that can’t provide what we need from it.

And if it’s *not* the Microsoft we’re facing, maybe it’s time for someone who’s still at Microsoft to come right out and say so. ▀



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Next Thursday at the Latest

Manager making a trip overseas wants to take copies of all company resources — manuals, forms, everything available — so the remote office can use them too. On a Friday afternoon, 12 hours before her flight, she asks pilot fish to copy the entire contents of the server to a CD. But that’s over 460GB of data, fish says. Blank look, so fish tries again: It would require creating about 900 CDs. “Oh, OK,” says manager. “So, by Wednesday then?”

Security?

University pilot fish is supposed to install a software package

on an Army system as part of a support contract. But it’s a secure system — fish can’t access it, and the security-cleared people who do have access aren’t allowed to copy software from an unsecured system into it. But fish has administrator privileges on a national lab’s archive site, which the Army has declared “trustworthy.” So fish copies the software to the archive, and the Army IT people copy it back to their secure system. Grumbles fish, “Bureaucracy at its best.”

Discrepancy

Database admin pilot fish runs the quarterly sales report as usual. But the assistant to the CEO demands that fish run it again: “The actual sales numbers don’t match the projected numbers!”

Convenience

After consultant pilot fish gets a network back up, he tells client he still needs to restore remote access. “Only one user uses that — you!” client snaps. But if there’s a



problem, I won’t have to drive all the way out to the site, fish says.

“Oh, I see,” client interrupts. “It’s only a convenience for you!” Fish sighs, “After I explained that a two-minute problem can be fixed remotely in two minutes and he won’t be charged for travel time, he calmed down.”

Reality Check

All employees are required to pass an online test on new regulations — but many haven’t taken the quiz. Bosses come up with an idea to ensure compliance, which CIO runs past network manager pilot fish: “How easy is it to disable the network log-ons of employees who haven’t taken the test?” Not hard, says fish, but how will they take the online test if they can’t get on the network? CIO: “Good point.”

Never Happened

It’s a dumb question this user asks a help desk pilot fish, and she realizes that when fish tells her that the solution is to turn on the printer. “Did you get my name?” she asks. No, says fish — and user quickly hangs up.

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